The PHOTOFACT Servicer

SET 398 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ MAY 1, 1958

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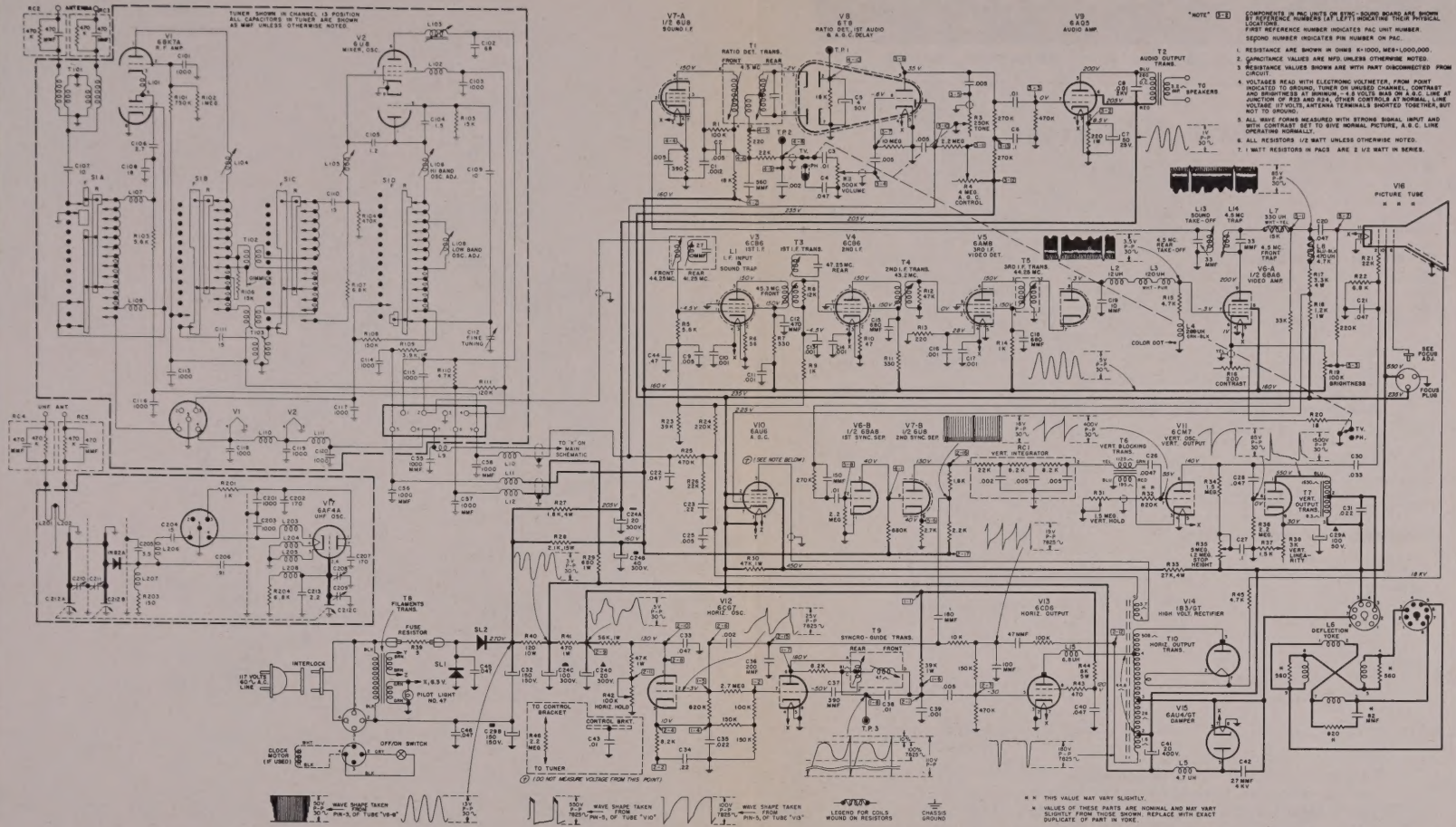
The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

SILVERTONE MODELS 7133, 7135, 7175, (Ch 528.52050)


TUNER SHOWN IN CHANNEL 13 POSITION
ALL CAPACITORS IN TUNER ARE SHOWN AT MMF UNLESS OTHERWISE NOTED.
V1 6BK7A R.F. AMP.
V2 6U8 MIXER, OSC.
V7-A 1/2 6U8 SOUND I.F.
V8 6T8 RATIO DET., 1ST AUDIO & A.G.C. DELAY
V9 6AQ5 AUDIO AMP.
T1 RATIO DET. TRANS.
T2 AUDIO OUTPUT TRANS.
T6 SPEAKERS
V3 6CB6 1ST I.F.
V4 6CB6 2ND I.F.
V5 6AM8 3RD I.F. VIDEO DET.
V6-A 1/2 6BA6 VIDEO AMP.
V16 PICTURE TUBE
V6-B 1/2 6BA8 1ST SYNC. SEP.
V7-B 1/2 6U8 2ND SYNC. SEP.
V10 6AU8 A.S.C.
V11 6CM7 VERT. OSC., VERT. OUTPUT
V12 6CG7, 6CM7 HORIZ. OSC.
V13 6CD6 HORIZ. OUTPUT
V14 1B3/GT HIGH VOLT. RECTIFIER
V15 6AU4/GT DAMPER
V17 6AF4A UHF OSC.
T8 FILAMENTS TRANS.
T9 SYNCRO-GUIDE TRANS.
T10 HORIZ. OUTPUT TRANS.
L6 DEFLECTION YOKE
SL1 SL2
INTERLOCK
OFF/ON SWITCH
CLOCK MOTOR (IF USED)
PILOT LIGHT NO. 47
TO CONTROL BRACKET
TO TUNER
TO MAIN SCHEMATIC
SEE FOCUS ADJ.
FOCUS PLUG
"NOTE"
COMPONENTS IN PAC UNITS OR SYNC-SOUND BOARD ARE SHOWN BY REFERENCE NUMBERS (AT LEFT) INDICATING THEIR PHYSICAL LOCATIONS.
FIRST REFERENCE NUMBER INDICATES PAC UNIT NUMBER.
SECOND NUMBER INDICATES PIN NUMBER ON PAC.
1. RESISTANCE ARE SHOWN IN OHMS K=1000, MEG=1,000,000.
2. CAPACITANCE VALUES ARE MFD. UNLESS OTHERWISE NOTED.
3. RESISTANCE VALUES SHOWN ARE WITH PART DISCONNECTED FROM CIRCUIT.
4. VOLTAGES READ WITH ELECTRONIC VOLTMETER, FROM POINT INDICATED TO GROUND, TUNER ON UNUSED CHANNEL, CONTRAST AND BRIGHTNESS AT MINIMUM, -4.5 VOLTS BIAS ON A.G.C. LINE AT JUNCTION OF R23 AND R24, OTHER CONTROLS AT NORMAL, LINE VOLTAGE 117 VOLTS, ANTENNA TERMINALS SHORTED TOGETHER, BUT NOT TO GROUND.
5. ALL WAVE FORMS MEASURED WITH STRONG SIGNAL INPUT AND WITH CONTRAST SET TO GIVE NORMAL PICTURE, A.G.C. LINE OPERATING NORMALLY.
6. ALL RESISTORS 1/2 WATT UNLESS OTHERWISE NOTED.
7. 1 WATT RESISTORS IN PACS ARE 2 1/2 WATT IN SERIES.
WAVE SHAPE TAKEN FROM PIN-3, OF TUBE "V6-B"
WAVE SHAPE TAKEN FROM PIN-5, OF TUBE "V10"
WAVE SHAPE TAKEN FROM PIN-5, OF TUBE "V13"
LEGEND FOR COILS WOUND ON RESISTORS
CHASSIS GROUND
* * THIS VALUE MAY VARY SLIGHTLY.
* VALUES OF THESE PARTS ARE NOMINAL AND MAY VARY SLIGHTLY FROM THOSE SHOWN. REPLACE WITH EXACT DUPLICATE OF PART IN YOKE.

SCHEMATIC DIAGRAM COURTESY SEARS, ROEBUCK AND CO.

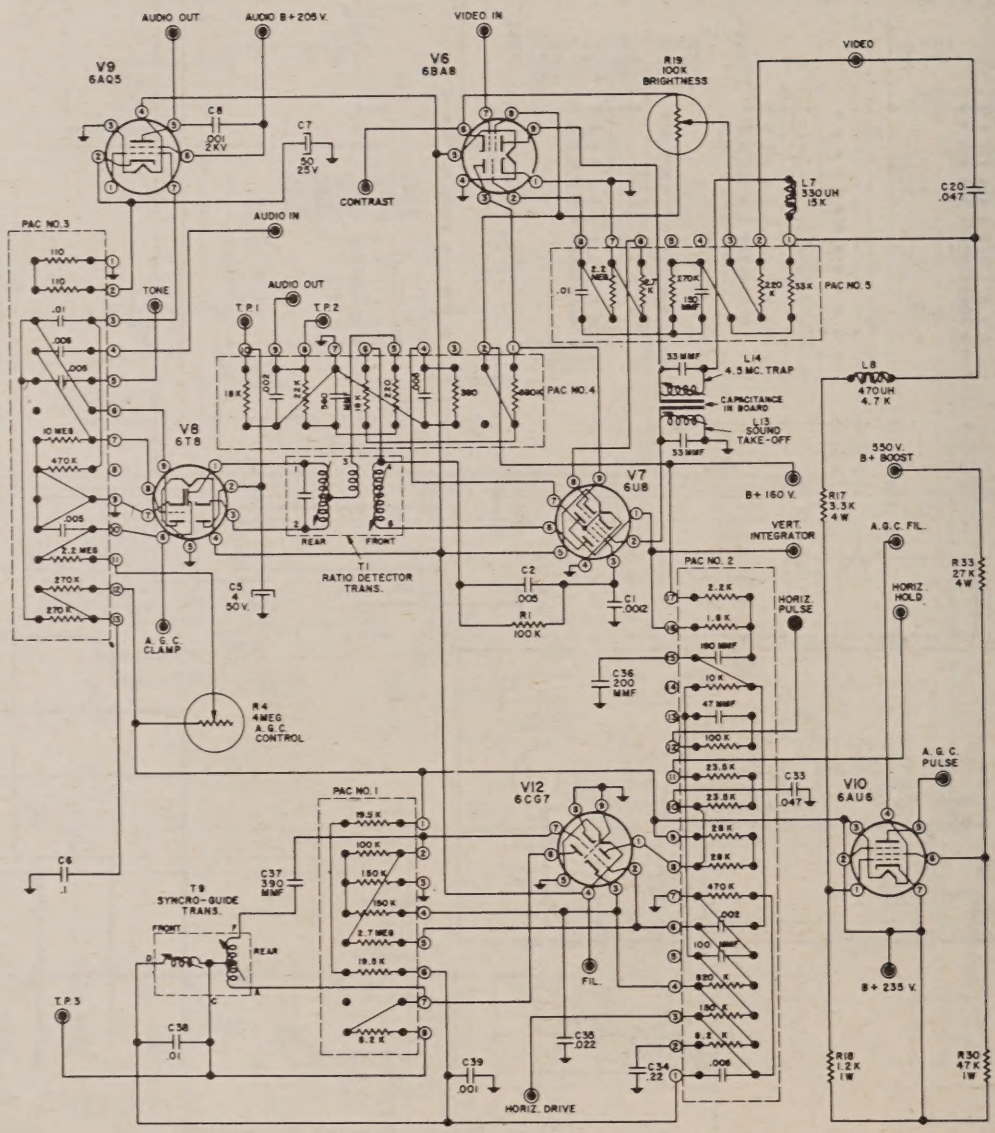
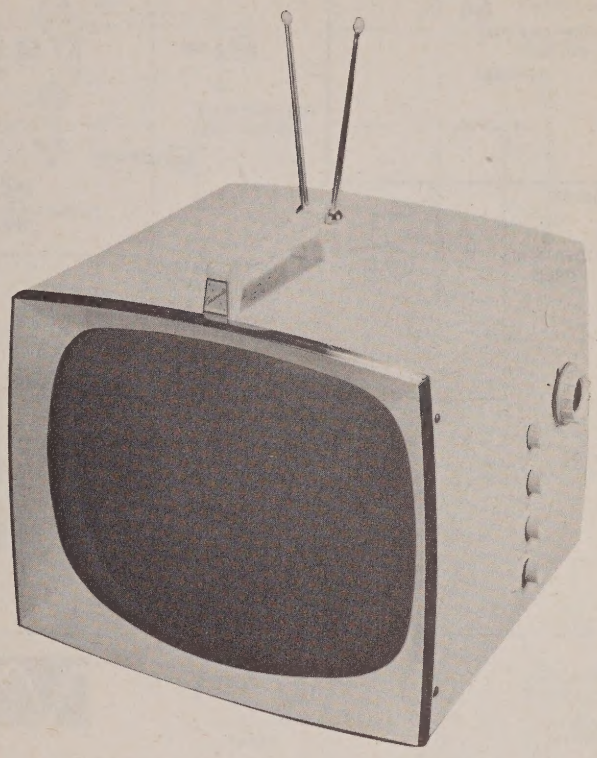


Fig. 8. Wiring Diagram of Sync-Sound Board

DISASSEMBLY INSTRUCTIONS



CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the side.
2. Remove 5 metal screws from the rear cover. Remove the rear cover.
3. Remove 2 metal screws holding the AC interlock.
4. Remove the speaker leads, picture tube socket and yoke leads.
5. Remove 2 hex nuts holding the speaker. Remove the speaker.
6. Remove 2 metal screws holding the chassis at the top.
7. Remove 2 chassis bolts from the bottom.
8. Partially remove the chassis. Remove the HV lead and remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRADE NAME	Coronado Model TV3-9402A
SUPPLIER	Gamble-Skogmo, Inc., 15 North 8th. Street, Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 130 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 1 o'clock, and should be adjusted first. The LOW band adjustment is located at 6 o'clock. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

1. Follow steps 2 and 4 of "Chassis Removal".
2. Remove the front handle bolt and 5 metal screws holding the front to the cabinet.
3. Partially remove the front, remove the HV lead, and remove the front.
4. Loosen picture tube mounting strap bolt and remove the picture tube.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pin 6 and 10 or 6 and 2.

HORIZONTAL OSCILLATOR BUZZ ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSE DEVICE

A 4.7Ω fusible resistor (R62) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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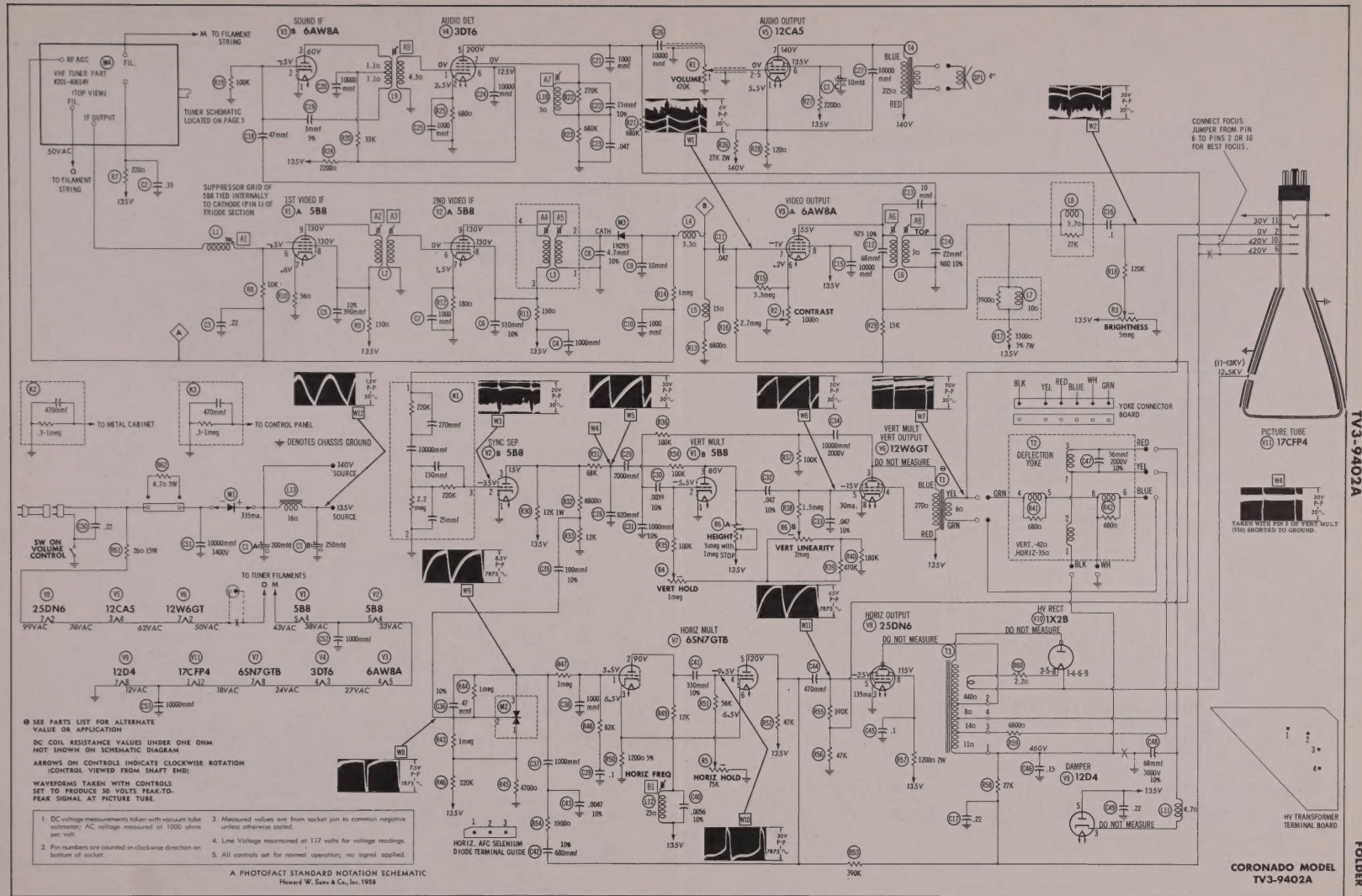
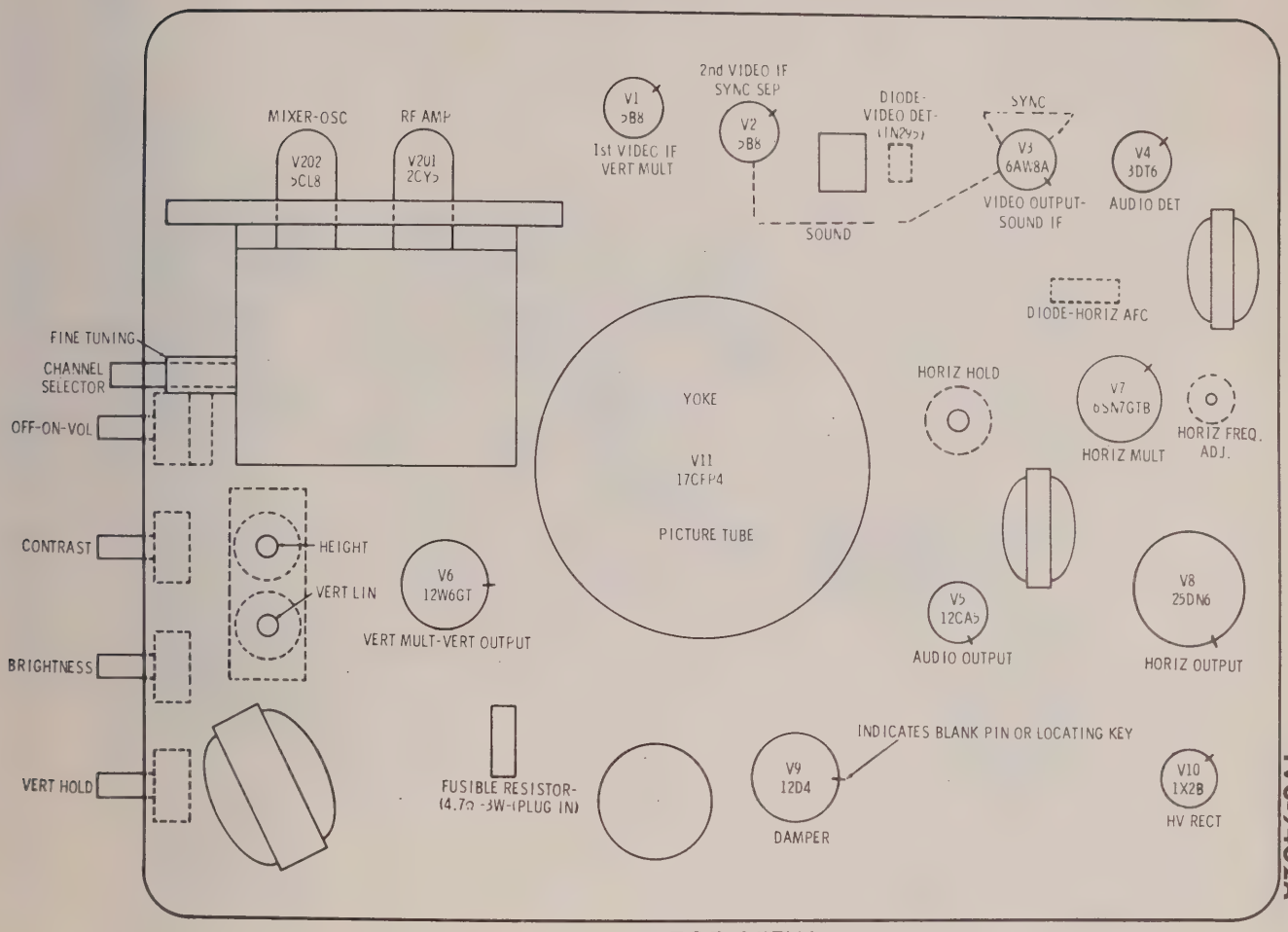
CORONADO MODEL TV3-9402A
CORONADO MODEL TV3-9402A
SET 398 FOLDER 1


SOUND IF V3 6AW8A
AUDIO DET V4 3DT6
AUDIO OUTPUT V5 12CA5
VOLUME 470K
1ST VIDEO IF V1 A 5B8
2ND VIDEO IF V2 A 5B8
VIDEO OUTPUT V3 A 6AW8A
CONTRAST 1000Ω
BRIGHTNESS 5meg
SYNC SEP V2 B 5B8
VERT MULT V1 B 5B8
VERT MULT VERT OUTPUT V6 12W6GT
DO NOT MEASURE
HEIGHT 5meg with 1meg STOP
VERT LINEARITY 2meg
VERT HOLD 1meg
HORIZ MULT V7 6SN7GTB
HORIZ OUTPUT V8 25DN6
HV RECT V10 1X2B
DAMPER V9 12D4
HORIZ FREQ
HORIZ HOLD 75K
HORIZ. AFC SELENIUM DIODE TERMINAL GUIDE
DEFLECTION YOKE T2
YOKE CONNECTOR BOARD
PICTURE TUBE V11 17CFP4
HV TRANSFORMER TERMINAL BOARD
TUNER SCHEMATIC LOCATED ON PAGE 5
VHF TUNER PART #201-400149 (TOP VIEW)
TO METAL CABINET
TO CONTROL PANEL
DENOTES CHASSIS GROUND
140V SOURCE
135V SOURCE
SW ON VOLUME CONTROL
TO TUNER FILAMENTS
CONNECT FOCUS JUMPER FROM PIN 6 TO PINS 2 OR 10 FOR BEST FOCUS.
TAKEN WITH PIN 3 OF VERT MULT (V10) SHORTED TO GROUND.
25DN6 12CA5 12W6GT 5B8 5B8
12D4 17CFP4 6SN7GTB 3DT6 6AW8A
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
CORONADO MODEL TV3-9402A

TUBE PLACEMENT CHART



TOP VIEW

CORONADO MODEL TV3-9402A

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

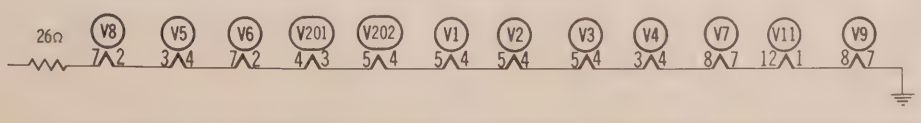
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R62), Rectifier (M1)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, Diode (M3), V3**
No pic, no sound, has snow - **V201, V202**
No pic, has sound, has raster - **V3, V11**
Has pic, no sound - **V3, V4, V5**

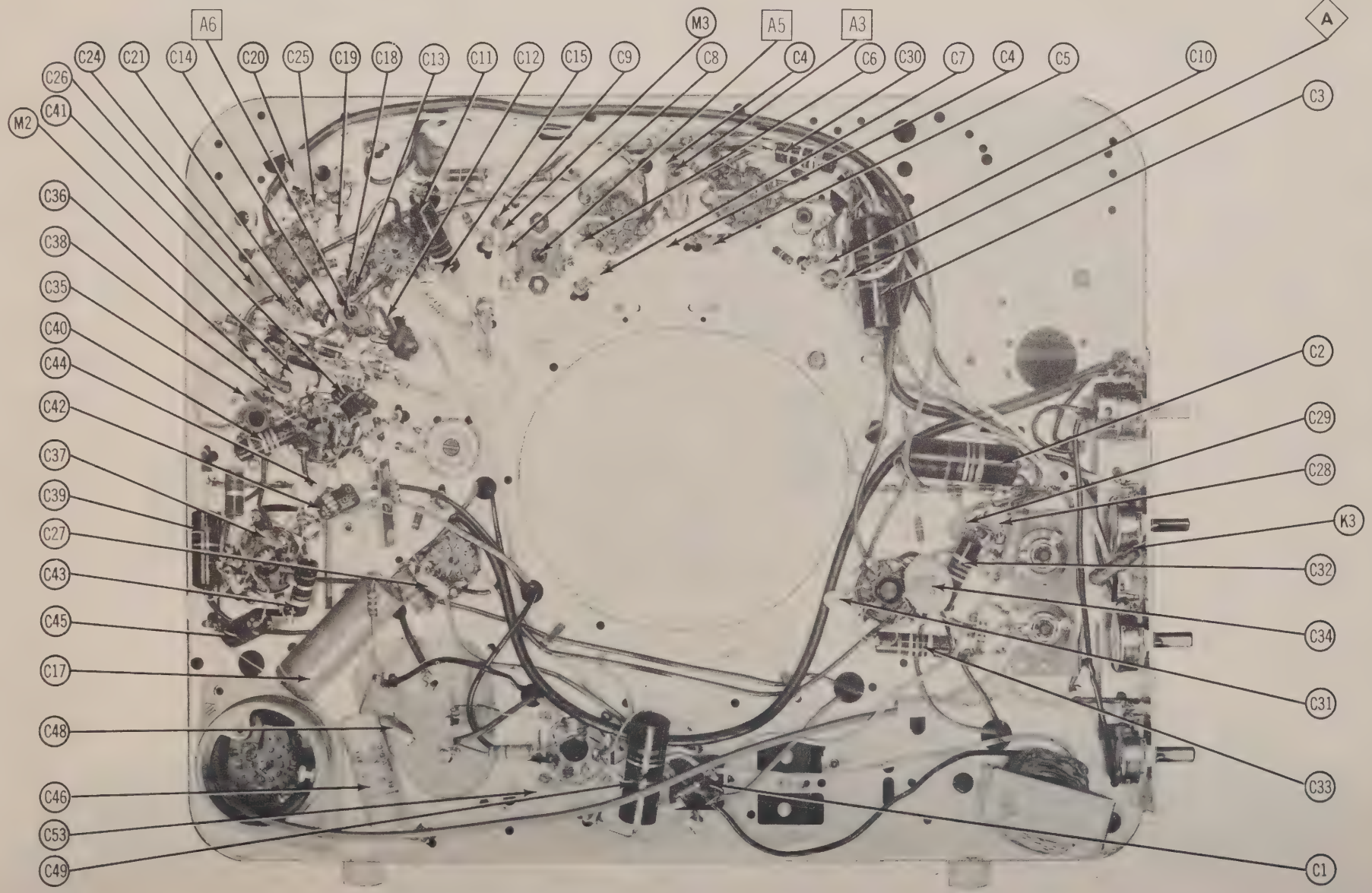
SYNC FAILURE
No vert. sync - **V2**
No horiz. sync - **V2, Rectifier (M2)**
No vert. or horiz. sync - **V2**

SWEEP FAILURE
No raster, has sound - **M2, V7, V8, V9, V10, V11**
No vertical deflection - **V1, V6**
Poor vert. linearity or foldover - **V1, V6**
Poor horiz. linearity or foldover - **V7, V8, V9**
Narrow picture - **V7, V8, V9, M1**
Vert. off freq. - **V1, V6**
Horiz. off freq. - **V9**

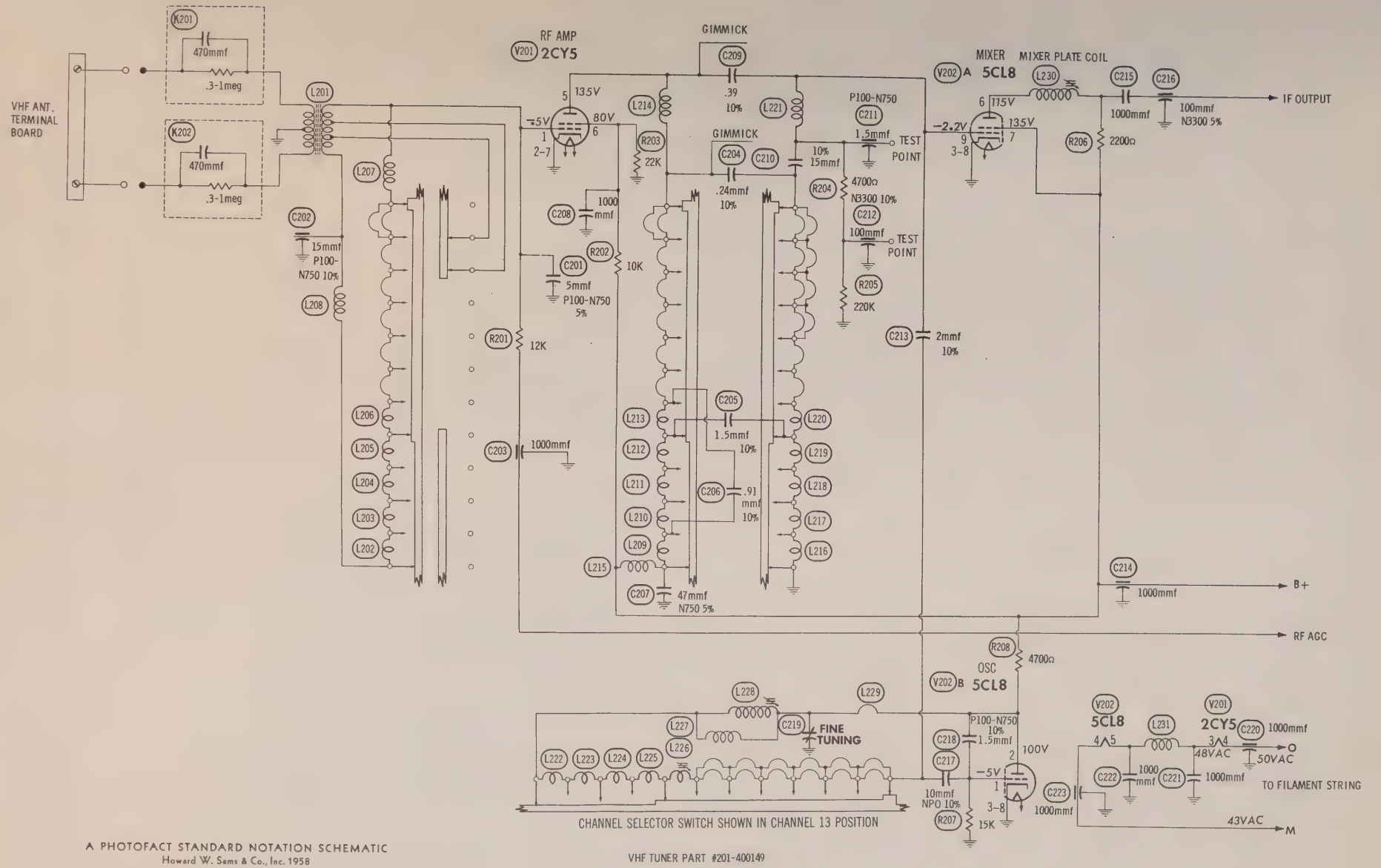
This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).



FOLDER 1



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUNER SCHEMATIC

CORONADO MODEL TV3-9402A

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2CY5	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CL8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	5		121-001387							P100-N750 5%
C202	15		121-001663							P100-N750 10%
C203	1000		121-001386	EF-001	MFT-1000				503C-D1	
C204	.24		121-001390							10%
C205	1.5		121-001391	NPO-SI 1.5				ZT-5515	5TCCB-V15	10%
C206	.91		121-001668							10%
C207	47		121-001389	N750-DI 47	DTN-47		TC7-47			N750 5%
C208	1000		121-001388	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C209	.39		121-001447							10%
C210	15		121-001393	NPO-DI 15	DTZ-15	L10Q15	TCO-15		5TCC-Q15	10%
C211	1.5		121-001665							P100-N750 ± .5mmf
C212	100		121-001664							N3300 10%
C213	2		121-001395	NPO-SI 2						10%
C214	1000		121-001386	EF-001	MFT-1000				503C-D1	
C215	1000		121-001388	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C216	100		121-001666							N3300 5%
C217	10		121-001396	NPO-SI 10	TCZ-10	CTA6Q1C	TCO-10	ZT-541	5TCC-Q1	NPO 10%
C218	1.5		121-001399							P100-N750 10%
C219			121-001667							
C220	1000		121-001386	EF-001	MFT-1000				503C-D1	
C221	1000		121-001388	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C222	1000		121-001388	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C223	1000		121-001386	EF-001	MFT-1000				503C-D1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		CORONADO PART No.	NOTES
	OHMS	WATT		
R201	12K		451-252123	
R202	10K		451-252103	
R203	22K		451-252223	
R204	4700Ω		451-252472	

ITEM No.	RATING		CORONADO PART No.	NOTES
	OHMS	WATT		
R205	220K		451-253224	
R206	2200Ω		451-252222	
R207	15K		451-252153	
R208	4700Ω		451-252472	

COILS (RF-IF)

ITEM No.	USE	CORONADO PART No.	NOTES
L201	Ant. Trans.	121-001669	
L202	Ant. Coil	121-001406	Channel 2
L203	Ant. Coil	121-001406	Channel 3
L204	Ant. Coil	121-001670	Channel 4
L205	Ant. Coil	121-001412	Channel 5
L206	Ant. Coil	121-001406	Channel 6
L207	Ant. Coil	121-001408	Channel 13
L208	Ant. Coil	121-001408	
L209	RF Coil	121-001409	Channel 2
L210	RF Coil	121-001410	Channel 3
L211	RF Coil	121-001411	Channel 4
L212	RF Coil	121-001412	Channel 5
L213	RF Coil	121-001671	Channel 6
L214	RF Coil	121-001414	Channel 13
L215	RF Coil	121-001402	
L216	Mixer Grid Coil	121-001415	Channel 2

ITEM No.	USE	CORONADO PART No.	NOTES
L217	Mixer Grid Coil	121-001414	Channel 3
L218	Mixer Grid Coil	121-001414	Channel 4
L219	Mixer Grid Coil	121-001417	Channel 5
L220	Mixer Grid Coil	121-001418	Channel 6
L221	Mixer Grid Coil	121-001419	Channel 13
L222	Osc. Coil	121-001421	Channel 2
L223	Osc. Coil	121-001422	Channel 3
L224	Osc. Coil	121-001423	Channel 4
L225	Osc. Coil	121-001424	Channel 5
L226	Osc. Coil	121-001425	Channel 6
L227	Osc. Coil	121-001423	Channel 13
L228	Osc. Coil	121-001426	Channel 13
L229	Osc. Coil	121-001449	
L230	Mixer Plate Coil	121-001403	
L231	Fil. Choke	121-001404	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .3-1meg	049-100072	Centralab Sprague	RC-471 R-9177
K202	Antenna Isolation	470mmf, .3-1meg	049-100072	Centralab Sprague	RC-471 R-9177

TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 2 o'clock, and should be adjusted first. The LOW band adjustment is located at 6 o'clock. Adjust for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Disable the tuner oscillator by replacing the oscillator tube (V202) with one having the oscillator grid pin removed.
Short the antenna terminals together but not to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	42.75MC 45.75MC	Any non-interfering channel	Vert. Amp. thru detector (Fig.1) to pin 9 (plate) of 5B8 (V1). Low side to chassis.	Mixer Plate Coil & A1	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.
2.	1000mmf Ceramic Capacitor	High side to pin 6 (grid) of 5B8 (V1). Low side to chassis.	"	"	"	Vert. Amp. thru detector (Fig. 1) to pin 9 (plate) of 5B8 (V2). Low side to chassis.	A2, A3	"
3.	"	High side to pin 6 (grid) of 5B8 (V2). Low side to chassis.	"	"	"	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across video det. load).	A4, A5	"
4.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	"	"	"	"		Retouch Mixer Plate Coil and A1 thru A5 as required for response similar to Fig. 3. Remove bias and replace V202 in its socket.

SOUND IF ALIGNMENT

Set the contrast control fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1000mmf Ceramic Capacitor	High side to point (B). Low side to chassis.	Not used	4.5MC (400∿ 30% AM)	Any non-interfering channel	Vert. Amp. thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis.	A6	Turn A6 and A8 almost out of coil forms. Then adjust A6 for MINIMUM scope indication.
6.	"	"	4.5MC (15KC Swp)	Not used	"	Across speaker voice coil	A7, A8, A9	Use only enough sweep generator output to provide a usable pattern on scope. Turn A7 fully clockwise, then counter clockwise for maximum scope indication. Adjust A8 and A9 for maximum scope indication. Remove test equipment and tune in a local TV station. Retouch A7 for MINIMUM buzz.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

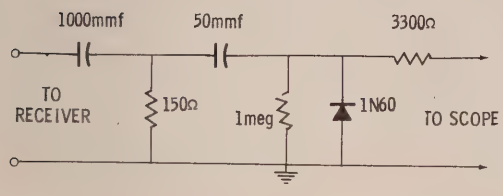


FIG. 1

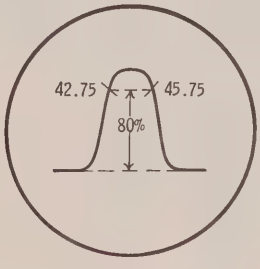


FIG. 2

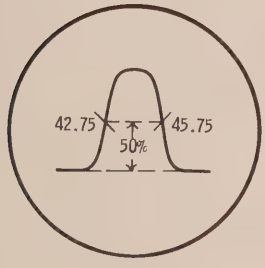


FIG. 3

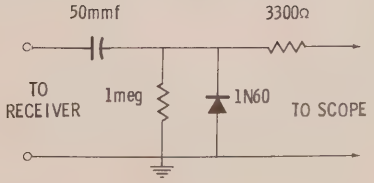


FIG. 4

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Video IF Amp - Vert. Mult	5B8	
V2	2nd Video IF Amp - Sync Sep	5B8	
V3	Video Output-Sound IF Amp	6AW8A	
V4	Audio Det	3DT6	
V5	Audio Output	12CA5	
V6	Vert. Mult. -Vert. Output	12AW6Y	
V7	Horiz. Mult	6BN7GTB	
V8	Horiz. Output	6DN6	
V9	Damper	1N34	
V10	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA			NOTES
	CORONADO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V11	17L FP4		17CFP4	1	1 Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA					
	CAP	VOLT	CORONADO PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	200	245-300001	AFBS3-13-90	XC0029			C-9008	*R3830
B	250	200						MT-4510	
C	40	200							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	33	200	501-014334	P288N-33				GEM-3033		
C3	22	200	501-014224	P288N-22		CUB4P22		GEM-2022	37M-P22	
C4	1000		047-100230	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C5	390		047-100639		MD-391	L10T39	ED-390			
C6	100		047-100001			L10T01	ED-100			
C7	1000		047-100230	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C8	4 ?		047-200403-08	NPO-4I 4 ?	TCC-4R?	CTA5V4?C	TCC-4 ?	ZT-5547	5TCCB-V4?	10%
C9	10		047-100180-11	MI 10	DS-100	L75Q1	GP-10	UC-541	5TCC-Q1	
C10	1000		047-100230	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C11	.047	200	501-014473	P288N-047	DF-503	CUB3S47		GEM-4147	37M-S47	
C12	68		047-100635							NTB 10%
C13	10		047-100180-11	MI 10	DS-100	L75Q1	GP-10	UC-541	5TCC-Q10	
C14	33		047-200084							N80 10%
C15	10000		047-100234	BPD-01	DD-103	BYA10DI	ED-01	DC5DI	5HK-SI	
C16	1	200	501-014104	P288N-1	DF-104	CUB3P1		GEM-201	37M-P1	
C17	.22	600	501-014224	P488N-22		CUB5S22		GEM-6022	37M-S22	
C18	47		478-027470	SI 47	DS-470	L75Q47	GP-47	UC-5447	5GA-Q47	
C19	5		047-100057							5%
C20	10000		047-100234	BPD-01	DD-103	BYA10DI	ED-01	DC5DI	5HK-SI	
C21	1000		047-100230	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C22	18		047-100680	NPO-I 18	DS-150	CTA5Q15C	GP-15		5TCC-Q15	10%
C23	.047	200	501-014473	P288N-047	DF-503	CUB3S47		GEM-4147	37M-S47	
C24	10000		047-100234	BPD-01	DD-103	BYA10DI	ED-01	DC5DI	5HK-SI	
C25	1000		047-100230	BPD-001	DD-103	BYA5DI	ED-1000	DC5DI	5HK-DI	
C26	10000		047-100234	BPD-01	DD-103	BYA10DI	ED-01	DC5DI	5HK-SI	
C27	10000		047-100234	BPD-01	DD-103	BYA10DI	ED-01	DC5DI	5HK-SI	
C28	680		047-100606	BPD-0006	DD-821	BYA10T82	ED-820		5GA-T82	
C29	2000		047-100235	BPD-003	DD-302	BYA10D3	ED-003	DC5D3	5HK-D3	
C30	.0039	400	148-300003							10%
C31	1000		047-100586				ED-1000			10%
C32	.047	200	501-014473							10%
C33	.047	200	501-014473							10%
C34	10000	2000	047-100708				ED-01	DC5II	20HKB-SI	
C35	100		478-027101	NPO-SI 100	DS-101	CTA5T1C	GP-100	ZT-531	5TCC-T1	10%
C36	47		478-027470	NPO-SI 47	DS-470	CTA5Q47C	GP-47		5TCC-Q47	10%
C37	1000		047-100503	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C38	1000		047-100230	BPD-001	DD-103	BYA5DI	ED-1000	DC5DI	5HK-DI	
C39	.1	200	501-014104	P288N-1	DS-104	CUB4P1		GEM-301	37M-P1	
C40	.0056	400	148-300004					GEM-16256		10%
C41	330		047-300010	1469-00033	MD-331	5R5T33	CY15C331K		M5-333	10%
C42	680		047-100304	1469-00068	MD-681	1R5T68	CY20C681K		M5-368	10%
C43	.0047	300	501-014173					GEM-16247		10%
C44	470		047-100636	BPD-00047	DD-471	BYA10T47	ED-470	UC-5547	5GA-T47	
C45	.1	200	501-014104	P288N-1	DF-104	CUB3P1		GEM-301	37M-P1	
C46	.15	600	501-014154	P488N-15		CUB4P15		GEM-3015	37M-P15	
C47	56	3000	047-100637			HVA30G56			30GA-Q56	10%
C48	56	3000	047-200678						30GA-Q56	10%
C49	.22	200	501-014224	P288N-22		CUB2P22		GEM-3022	37M-P22	
C50	.22	600	499-034224	P688N-22		CUB6P22		GEM-6022	37M-P22	
C51	10000	1600	047-100008						20HKB-SI	
C52	1000		047-100230	BPD-001	DD-102	BYA5DI	ED-1000	DC5DI	5HK-DI	
C53	10000		047-100234	BPD-01	DD-103	BYA10DI	ED-01	DC5DI	5HK-SI	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		CORONADO PART No	NOTES
	OHMS	WATT		
R7	240Ω		451-252241	
R8	10K		451-252103	
R9	150Ω		451-254151	
R10	56Ω		451-254560	
R11	150Ω		451-254151	
R12	180Ω		451-254181	
R13	6800Ω		451-254682	
R14	1meg		451-252105	
R15	3.3meg		451-252335	
R16	4.7meg		451-252475	
R17	33000 5%	7	024-101123	
R18	180K		451-252184	
R19	100K		451-252104	
R20	33K		451-252333	
R21	680K		451-252684	
R22	270K		451-252278	
R23	680K		451-252684	
R24	22000Ω		451-252223	
R25	680Ω		451-254681	
R26	27K	2	451-252273	
R27	22000Ω		451-252223	
R28	120Ω		451-254121	
R29	15K		451-252153	
R30	12K	1	451-252123	
R31	68Ω		451-254680	
R32	68000Ω		451-252683	
R33	12K		451-252123	
R34	100K		451-252104	
R35	100K		451-252104	
R36	100K		451-252104	
R37	100K		451-252104	
R38	1.5meg		451-252155	
R39	470K		451-252474	
R40	180K		451-252184	
R41	680Ω		451-254681	
R42	680Ω		451-254681	
R43	1meg		451-252105	
R44	1meg		451-252105	
R45	47000Ω		451-252473	
R46	220K		451-252224	
R47	1meg		451-252105	
R48	82K		451-252283	
R49	12K		451-252123	
R50	12000Ω 5%		451-252122	
R51	56K		451-252563	
R52	47K		451-252473	
R53	390K		451-252394	
R54	33000Ω		451-252332	
R55	390K		451-252394	
R56	47K		451-252473	
R57	1200Ω	2	451-252122	
R58	27K		451-252273	
R59	68000Ω		451-252682	
R60	2.2Ω		451-253023	
R61	26Ω	15	234-300007	
R62	4.7Ω	3	024-201118	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							NOTES
		CORONADO PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	
T1	Vert. Output	055-100303	Z1908 1	A-2322 2			26S75 3		
	Alt Vert Output	055-300303							
T2A	Yoke-Horiz (24MH)	053-300396	DF-810 4 5	MDF-92 4 5	Y90F19/43 4 5			Y-45 & MW49 4 5	
B	(90°)-Vert. (40MH)	-							
M5	Rear Cover & Centering Device	231-300008							
	Yoke Clamp	276-300034							
T3	Horiz. Output	053-300301		HVO-134	0254 *	HO-297 *		D-124	

1 Use 8 to 1 turns ratio.
2 Drill new mounting hole(s).
3 Use original yoke damping network, if necessary.
4 Connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
2			2	2		
4			4	4		
3			3	3		
1			1	1		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI	SEC.	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	4000Ω	3-4Ω	255-100012	ZJ107 1	A-3026	AU-801 1	A-3328	24S48	S-8X	1 Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CORONADO PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	255-300010	4A07	

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA					NOTES
		CORONADO PART No.	Meissner PART No.	Merit PART No	Miller PART No	Ram PART No	
L1	1st Video IF	051-202167	17-4534	TV-131		VF-4	
L2	2nd. Video IF	051-202168					
L3	3rd. Video IF	050-200898					
L4	RF Choke	053-100307					7.5 Microhenries
L5	Shunt Peaking Coil	051-102102		TV-107	6156		808 Microhenries
L5A	4.5MC Trap	051-201996		TV-120			
B	Ist. Sound IF						
L7	Shunt Peaking Coil	051-102101	19-4400*	TV-101 *	6134 *		383 Microhenries, wound on 3900Ω resistor
L8	Series Peaking Coil	051-102184	19-3180 ▲	TV-198 ▲	6120 ▲	VP-5 ▲	183 Microhenries, wound on 47K resistor
L9	2nd. Sound IF	051-202166					
L10	Quadrature Coil	051-201857	20-1005 +	TV-111 +	1480 +		
L11	RF Choke	053-100348					7.5 Microhenries, IRC Part #CLA

* Parallel with 3900Ω resistor.
▲ Parallel with 47K resistor.
+ Drill new mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI	SEC.	CORONADO PART No	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L12	33Ω		051-202169	19-1575	TV-153 *	6310 *	H-102 *	HS-4	* Enlarge mtg. hole.

FILTER CHOKE

ITEM No	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE 10 CURRENT 1000 (~)	CORONADO PART No	Halldorson PART No.	Merit PART No.	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L13	.250A	16Ω	.46 Hy.	256-200002	C5037 1			C-2328 1	26C93 1	C-57X

1 Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	REPLACEMENT DATA		
			CORONADO PART No		
K1	Sync Coupling	270mmf, 10000mmf, 150mmf, 39mmf, 220K, 330K, 2.2meg	249-200001		
K2	Cabinet Isolation	470mmf, .3-1meg	049-100072	Centralab	RC-471
				Sprague	R-2177
K3	Control Bracket Isolation	470mmf, 3-1meg	049-100072	Centralab	RC-471
				Sprague	R-2177

RECTIFIERS

ITEM No	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	CORONADO PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.335A	227-200001 1		1N1008 2	SD94A	M500 1	1 Silicon type
M2		027-300326 3	K1615 3		ITI 3 4		2 Germanium type.
							3 Selenium type.
							4 2 Required.

CRYSTAL DIODES

ITEM No	ORIG TYPE	REPLACEMENT DATA			NOTES
		CORONADO PART No.	CBS PART No.	SYLVANIA PART No	
M3	1N295	019-301980	1N80	1N80	Video Det (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Tuner	201-400049	VHF
M5	Centering Device	231-300008	Includes yoke rear cover

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	222-400009	
Escutcheon	207-100078	
Knob	215-100063	Channel Selector
Knob	215-100065	Fine Tuning
Knob	215-100062	Control
Cabinet	226-200023	
Handle Assy.	241-950084	Includes 4 items below
Handle	206-100001	
Antenna	057-200233	Dipole Assy.
Plate & Lead Assy.	057-204973	

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	
R1A	470K	1/2	225-300017	S-80	A47-500K-Z	Q33-133	TA55A	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KB-1*	SWZ-12	78-1	US-48	
R2	100KΩ	1/2	225-300018	B-505		Q17-108	U3	Contrast
R3	1meg	1/2	225-300019			Q17-141	TA56R	Brightness
R4A	1meg	1/2	225-300020	B-59	A47-1meg-S	Q21-137	TA61L	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	75K	1/2	025-201305	AB-25	A47-75K-S	Q21-125	PTA6L	Horiz. Hold
B	Shaft			AK-19	FS-3	TG	Not Req.	
R6A	5meg	1/2	025-201306					Height with 1meg stop
B	2meg							Vert. Lin.

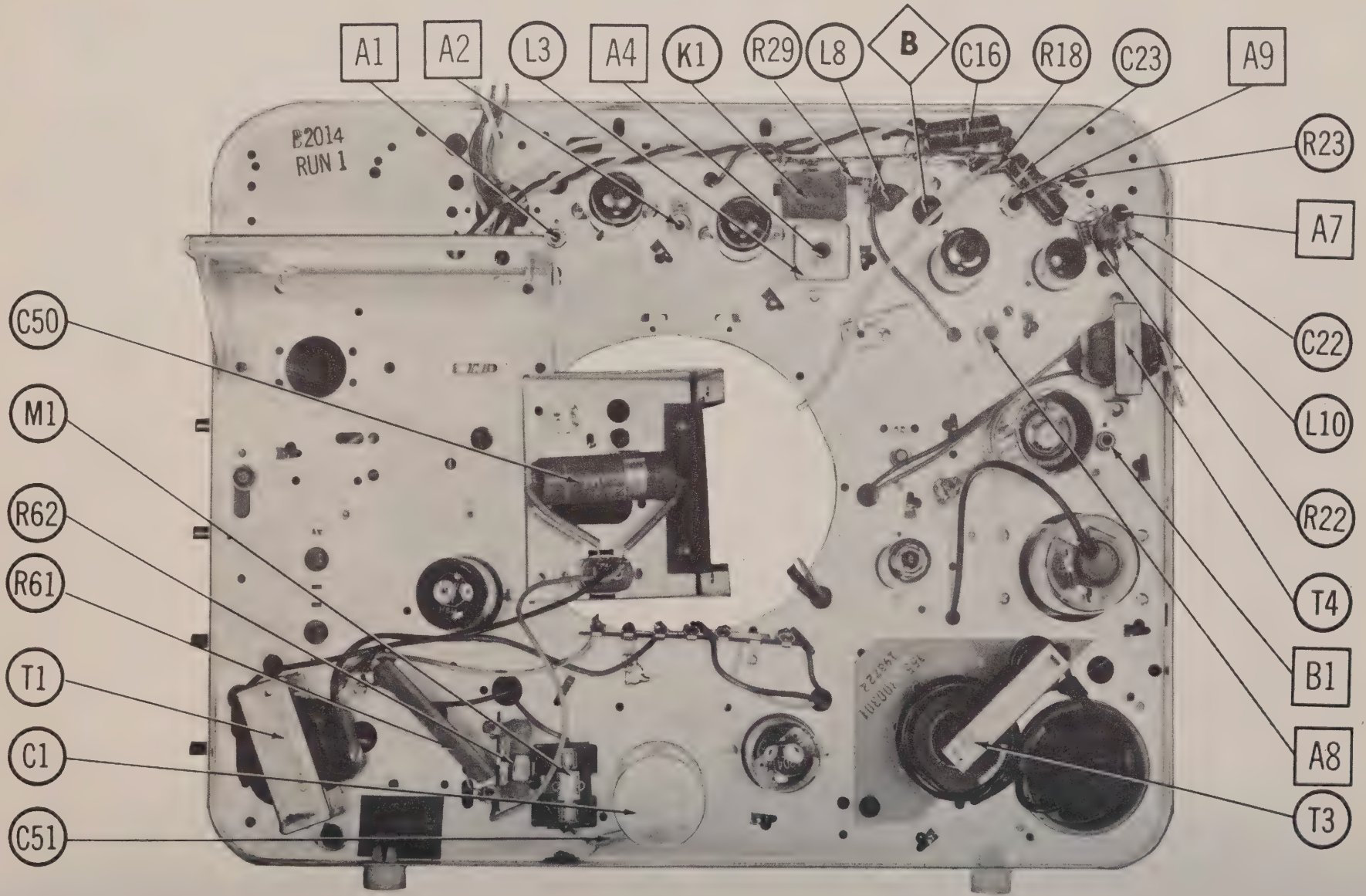
* Use KR with CRL "red label" control and KB with "blue label" control.

WIRING DATA

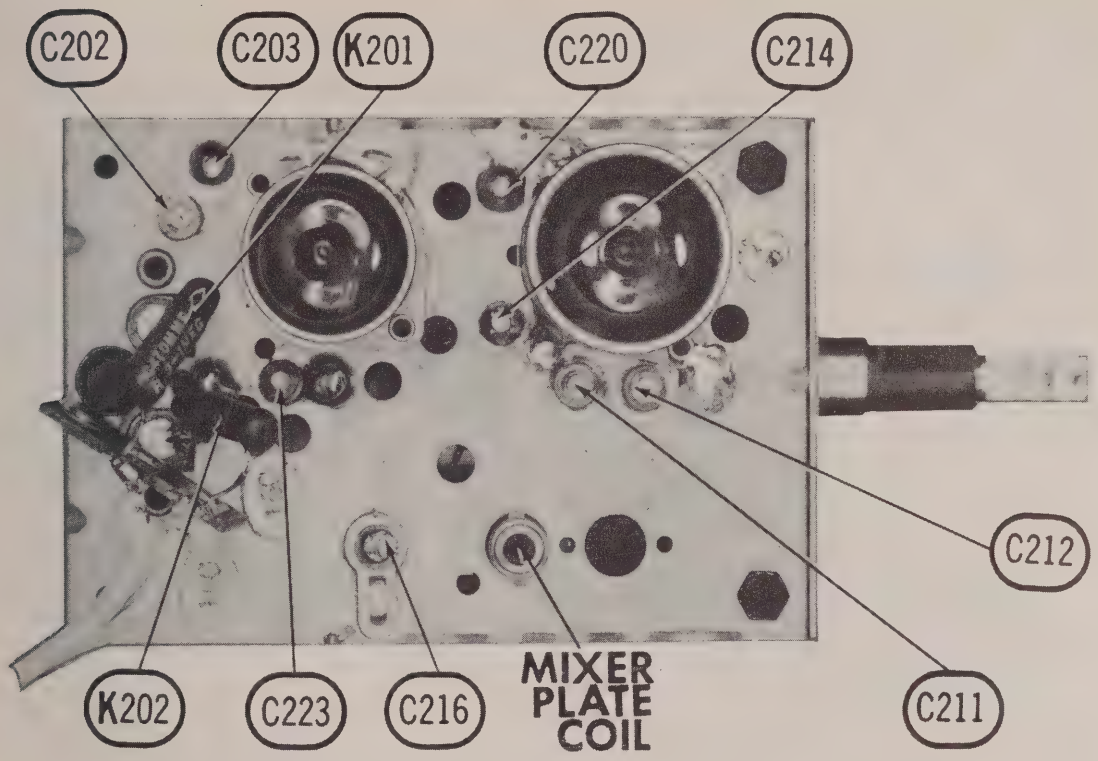
High Voltage Lead	Use BELDEN No 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8876
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) – 4 Conductor 8485 (Round) – 5 Conductor 8486 (Round) – 8 Conductor

CORONADO MODEL TV3-9402A

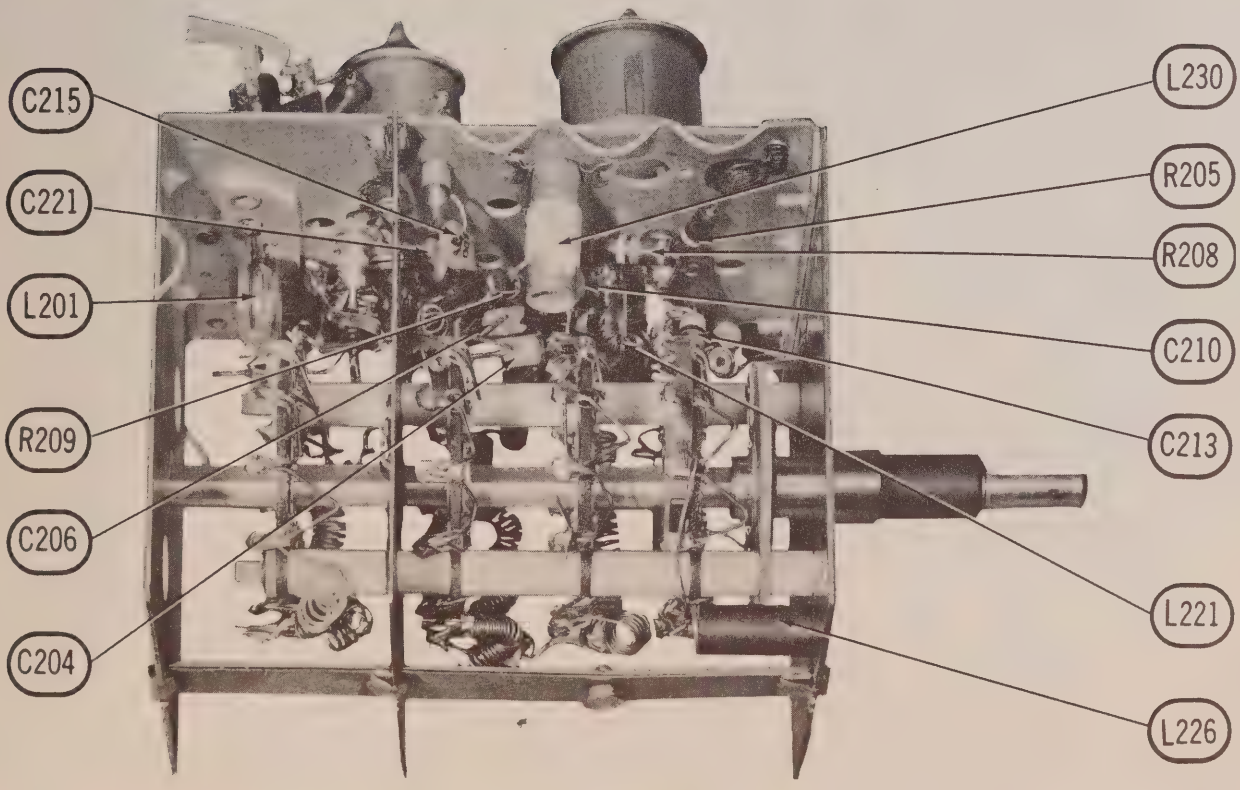
FOLDER 1



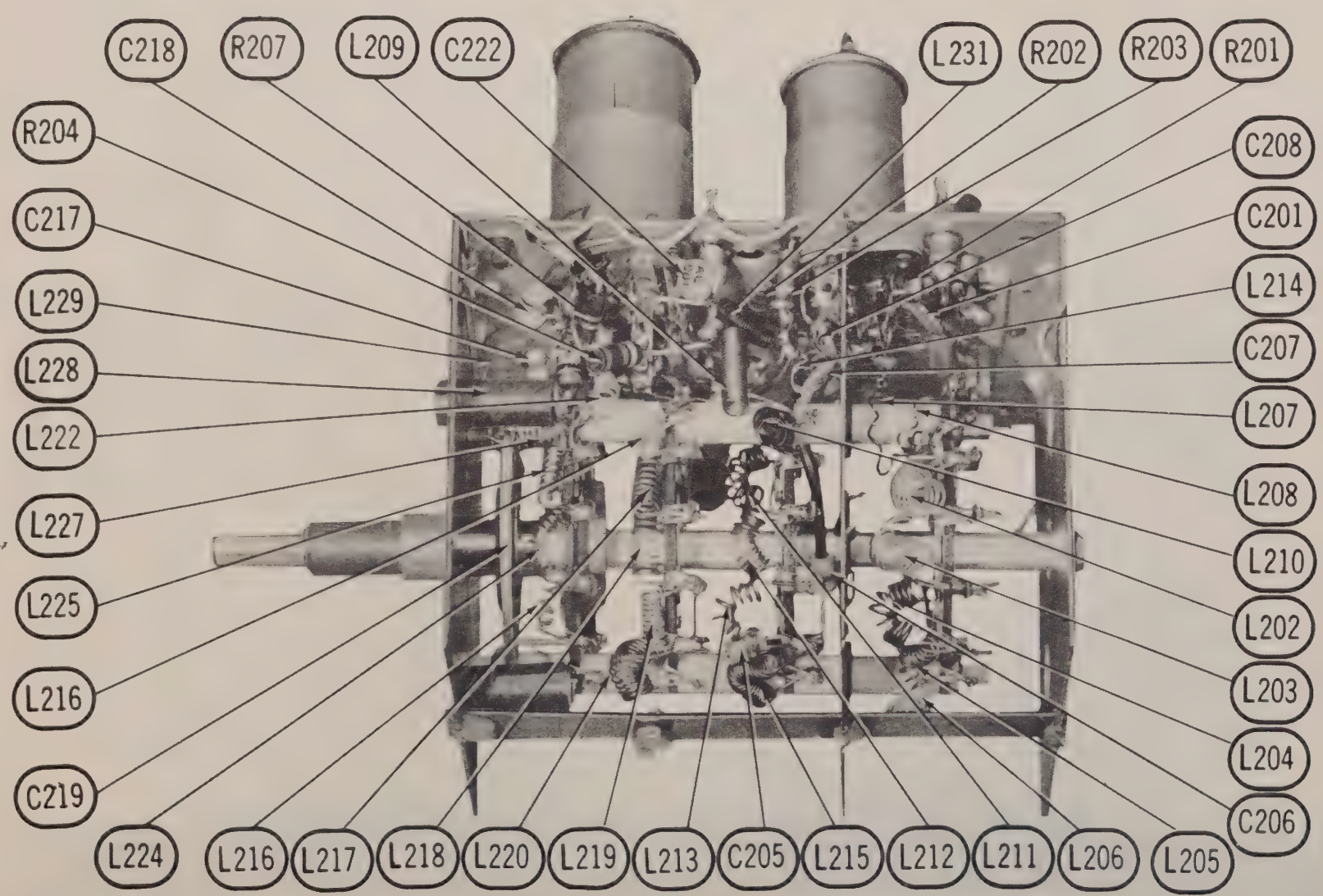
CHASSIS TOP VIEW



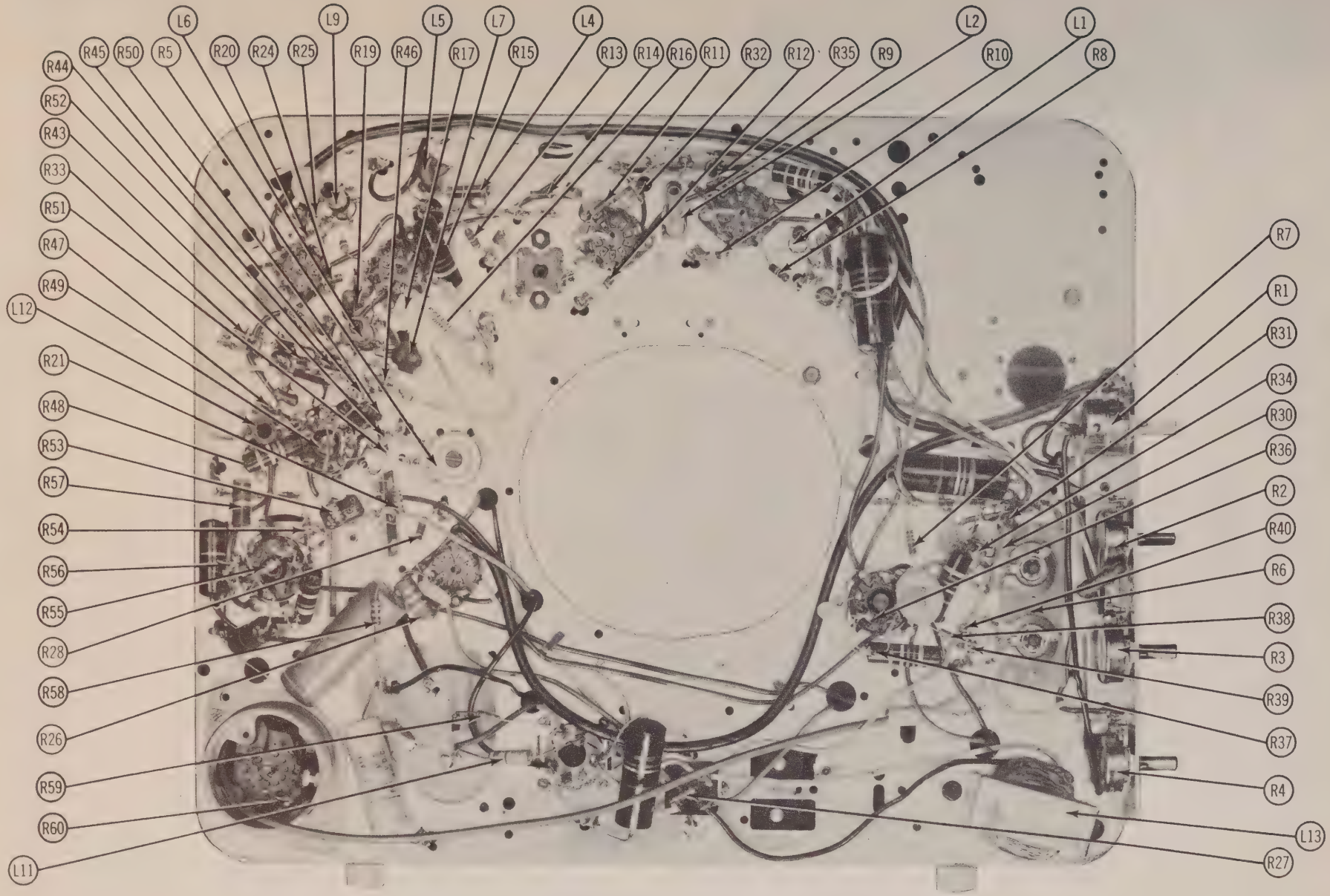
RF TUNER-TOP VIEW



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

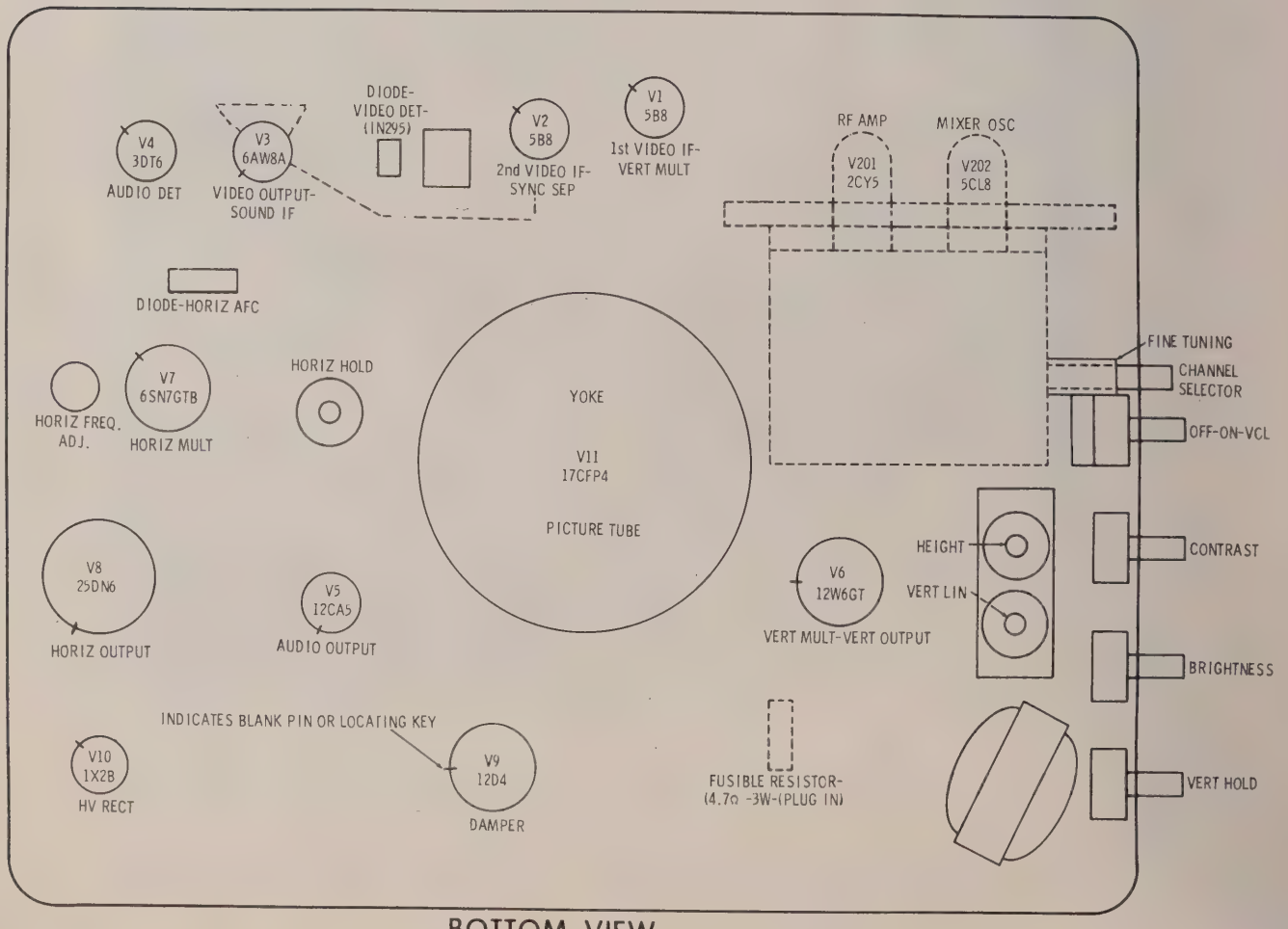


CHASSIS-RESISTOR AND INDUCTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

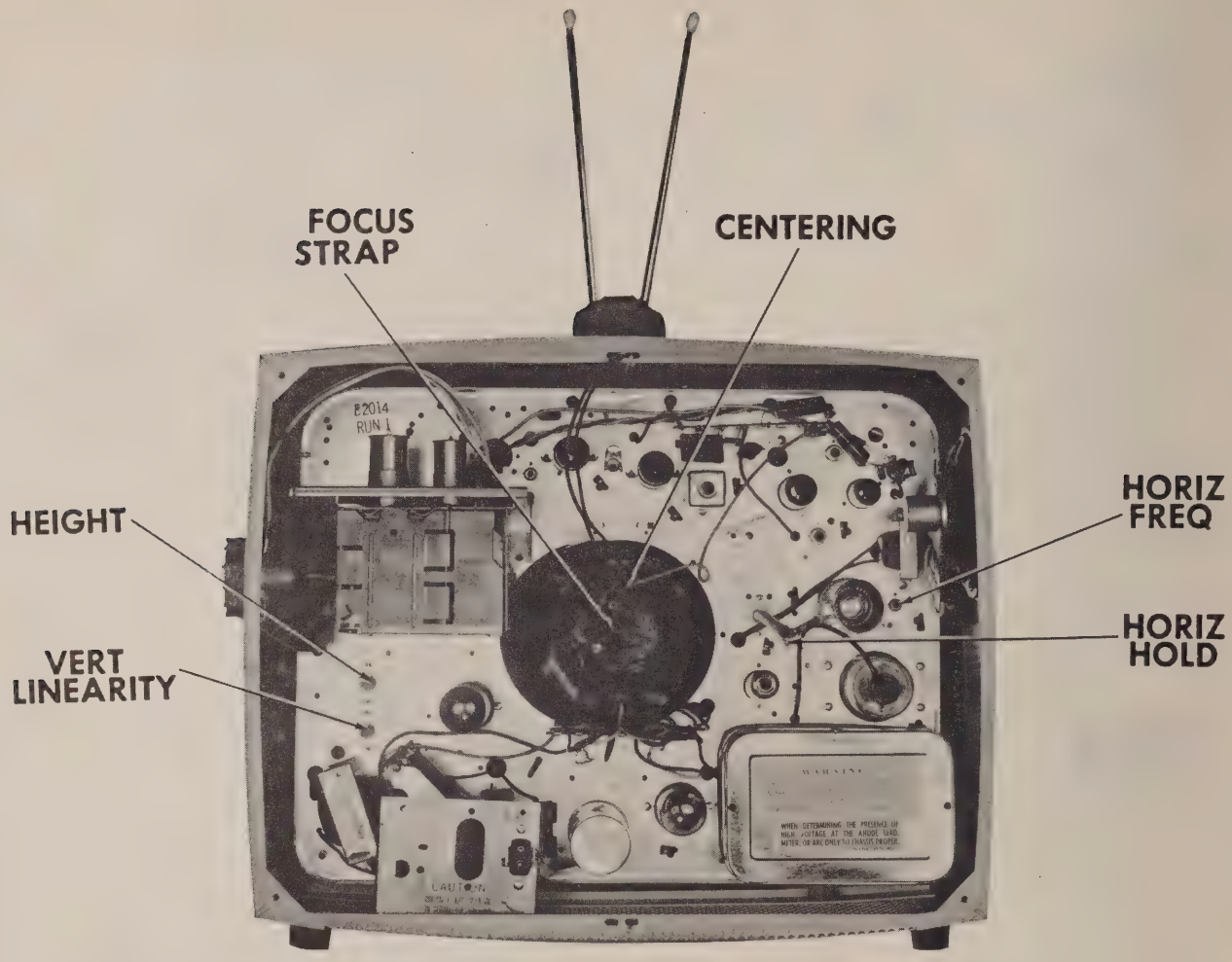
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	5B8	0Ω	•900K	•† 2meg	8Ω	9Ω	1meg	56Ω	† 150Ω	† 150Ω
V2	5B8	0Ω	2.4meg	† 8000Ω	7Ω	8Ω	.1Ω	180Ω	† 150Ω	† 150Ω
V3	6AW8A	0Ω	100K	† 35K	6Ω	7Ω	•120Ω	1.3meg	† 16Ω	† 3300Ω
V4	3DT6	4.3Ω	680Ω	6Ω	5Ω	‡700K	† 2200Ω	680K		
V5	12CA5	115Ω	0Ω	15Ω	13Ω	0Ω	† 2200Ω	† 225Ω		
V6	12W6GT	TP	10.5Ω	† 286Ω	† 16Ω	• 2.1meg	TP	13Ω	0Ω	
V7	6SN7GTB	2.3meg	† 12K	1200Ω	• 80K	† 47K	1200Ω	3.5Ω	5Ω	
V8	25DN6	TP	15Ω	0Ω	TP	440K	TP	20Ω	† 1200Ω	TOP CAP ‡13.7Ω
V9	12D4	NC	TP	¶	NC	† 16Ω	NC	0Ω	2.5Ω	
V10	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡450Ω
V11	17CFP4A	2.5Ω	9.5Ω	PIN 6 ‡27K	PIN 10 ‡27K	PIN 11 • 240K	PIN 12 3.5Ω			
V201	2CY5	1meg	0Ω	10Ω	10.5Ω	† 220Ω	† 7500Ω	0Ω		
V202	5CL8	15K	† 4900Ω	0Ω	9Ω	10Ω	† 2400Ω	† 220Ω	0Ω	220K

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 140V SOURCE.
‡ MEASURED FROM PIN 3 OF V9.
NC NO CONNECTION
TP TIE POINT



BOTTOM VIEW

TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a station, preferably with a test pattern.

2. Set the Horizontal Hold (R5) at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally.

3. Check horizontal sync on other channels and if necessary, retouch B1 for best sync on all channels.

SET 398 FOLDER 3

HOFFMAN MODELS B1227, U, M1227, U, P1227, U, W1227, U (Ch. 327, U)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the side.
2. Remove 5 wood screws holding the rear cover.
3. Remove 2 phillips head screws holding the control panel to the cabinet.
4. Remove the speaker leads, picture tube socket, yoke clamp and HV lead.
5. Remove 2 wood screws from the top chassis brace.
6. Remove 4 chassis bolts from the bottom.
7. Remove the chassis and yoke.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

MODEL M1227 (Ch. 327)

HOFFMAN MODELS B1227, U, M1227, U, P1227, U, W1227, U (Ch. 327, U)

TRADE NAME	Hoffman	MODELS	CHASSIS
		B1227, M1227, P1227, W1227	327
		B1227U, M1227U, P1227U, W1227U	327U
MANUFACTURER	Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, Calif.		
TYPE SET	Television Receiver		
TUBES	Fourteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 160 Watts, 1.4 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 screws from the bottom of the cabinet holding the safety glass and mask. Pull glass out at the bottom and lower to remove.

FOCUS

No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart.

FUSE DEVICE

A 7.5Ω fusible resistor (R67) is used for LV power supply protection. (For location, see tube placement chart).

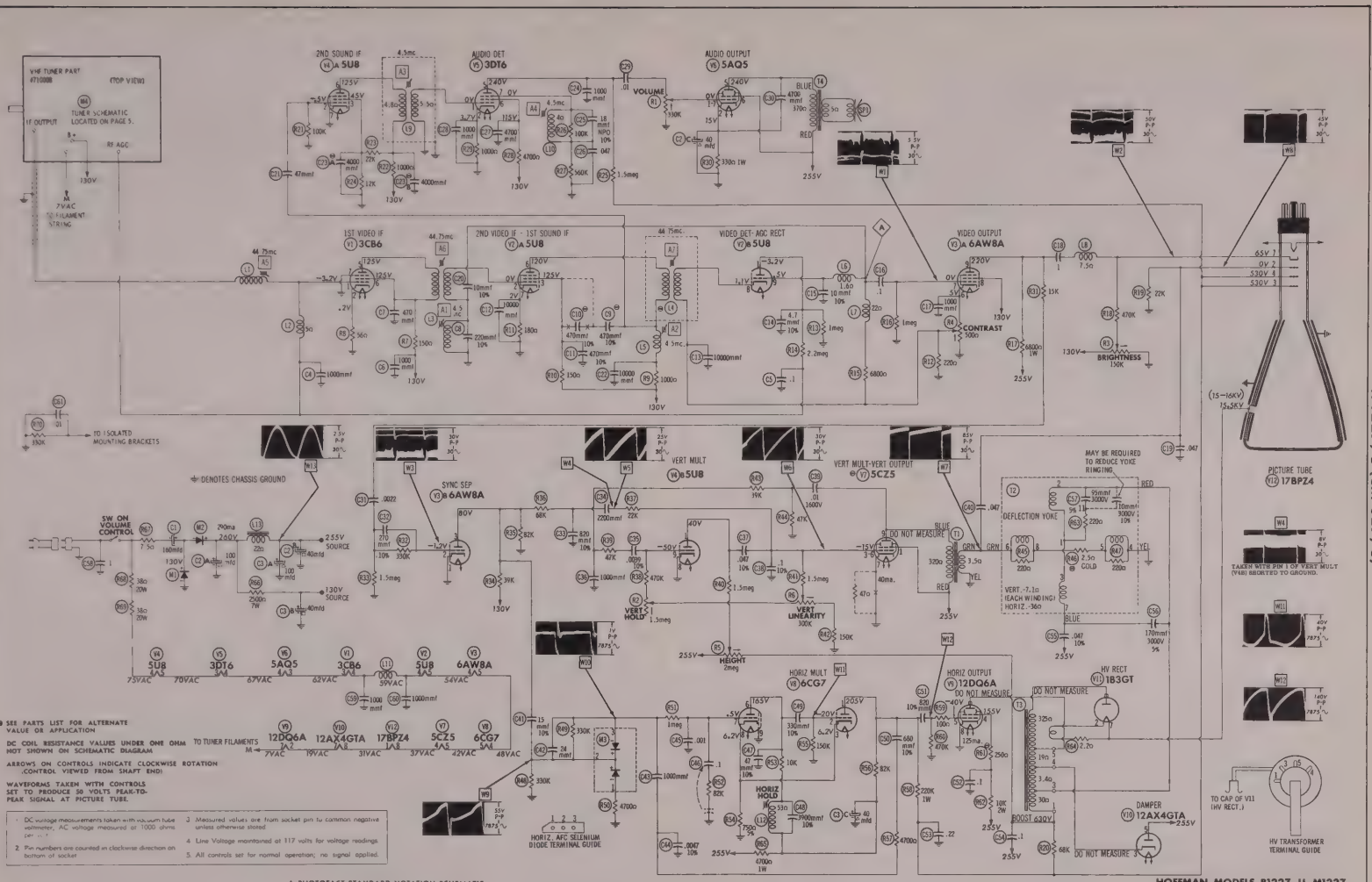
CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

SET 398 FOLDER 2

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

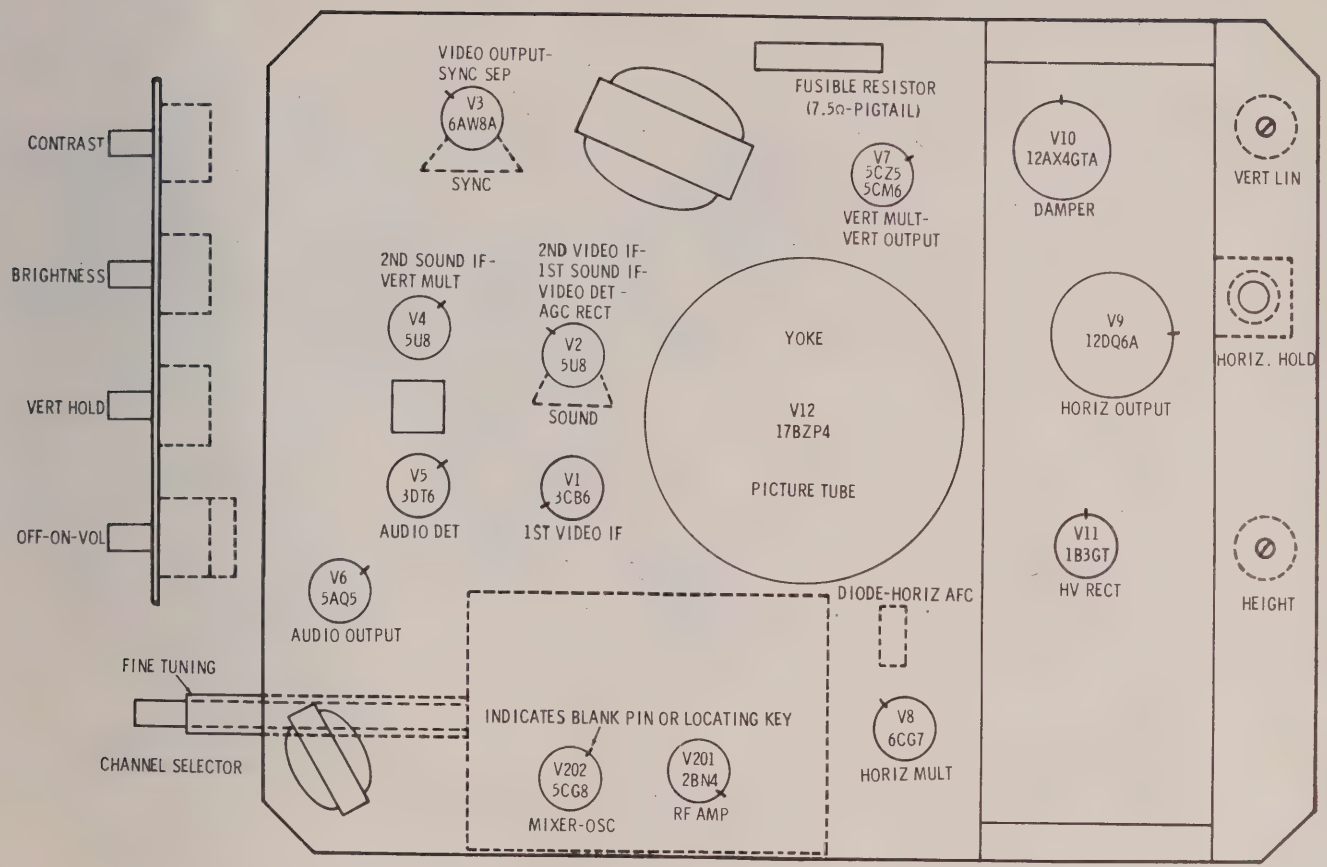
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America


HOFFMAN MODELS B1227, U, M1227, U, P1227, U, W1227, U (Ch. 327, U)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
2ND SOUND IF V4 5U8
AUDIO DET V5 3DT6
AUDIO OUTPUT V6 5AQ5
1ST VIDEO IF V1 3CB6
2ND VIDEO IF - 1ST SOUND IF V2 5U8
VIDEO DET- AGC RECT V7 5U8
VIDEO OUTPUT V3 6AW8A
SYNC SEP V3 6AW8A
VERT MULT V4 5U8
VERT MULT-VERT OUTPUT V7 5CZ5
HORIZ MULT V8 6CG7
HORIZ OUTPUT V9 12DQ6A
HV RECT V13 1B3GT
DAMPER V10 12AX4GTA
PICTURE TUBE V18 17BPZ4
VHF TUNER PART #710008 (TOP VIEW)
TUNER SCHEMATIC LOCATED ON PAGE 5.
DENOTES CHASSIS GROUND
TO ISOLATED MOUNTING BRACKETS
SW ON VOLUME CONTROL
VOLUME
CONTRAST
BRIGHTNESS
HEIGHT
VERT HOLD
VERT LINEARITY
HORIZ HOLD
BOOST 630V
DEFLECTION YOKE
MAY BE REQUIRED TO REDUCE YOKE RINGING.
TAKEN WITH PIN 1 OF VERT MULT (V4B) SHORTED TO GROUND.
DO NOT MEASURE
HORIZ. AFC SELENIUM DIODE TERMINAL GUIDE
TO CAP OF V11 (HV RECT.)
HV TRANSFORMER TERMINAL GUIDE
TO TUNER FILAMENTS
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

HOFFMAN MODELS B1227, U, M1227, U, P1227, U, W1227, U (Ch. 327, U)

FOLDER 2

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

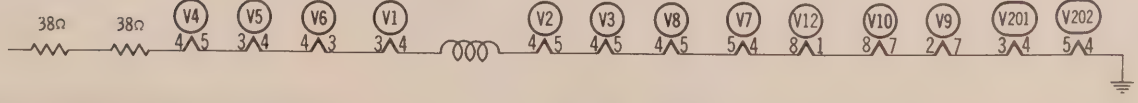
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R67), Rectifiers (M1, M2)**

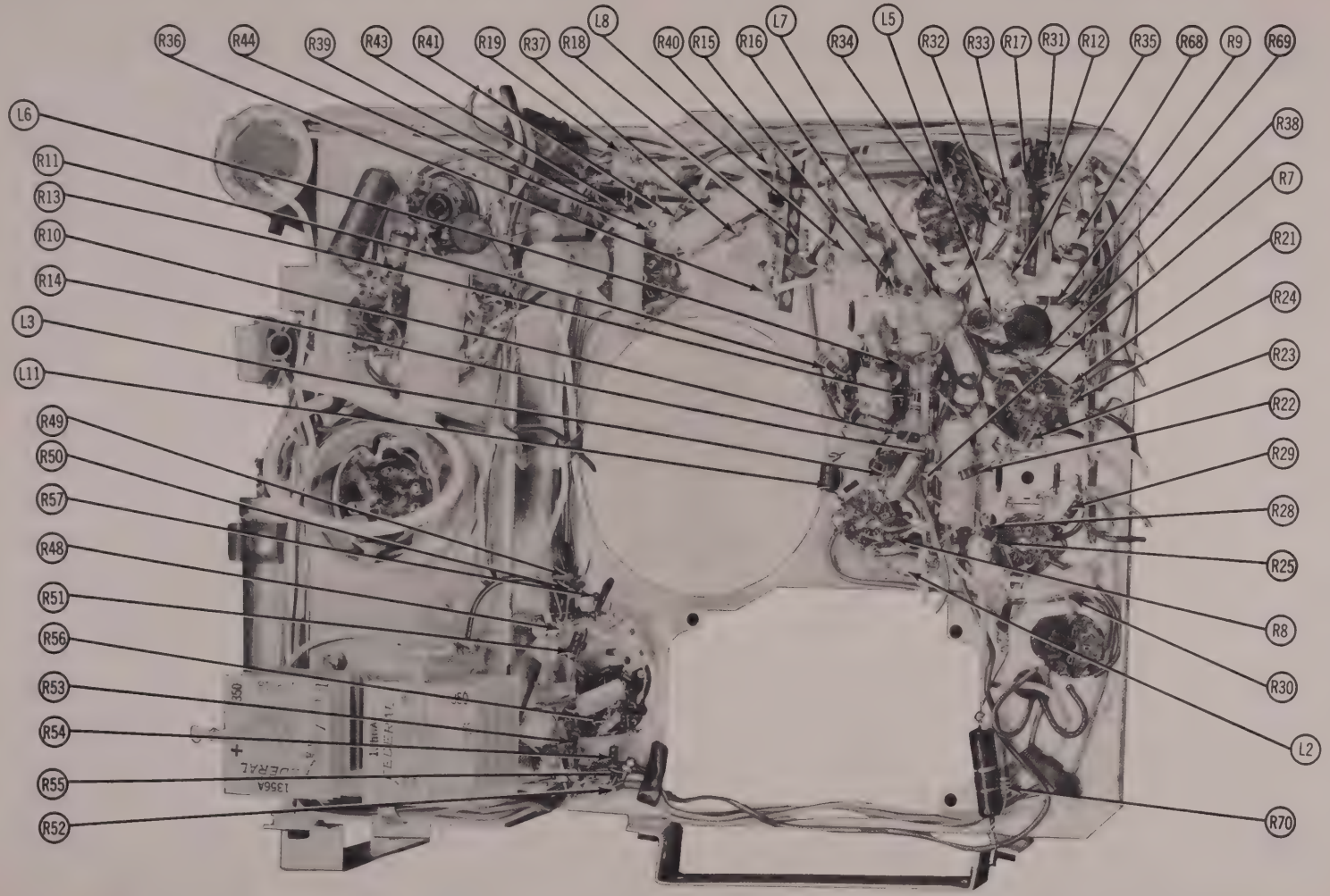
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2**
No pic, no sound, has snow - **V201, V202**
No pic, has sound, has raster - **V3, V12**
Has pic, no sound - **V2, V4, V5, V6**
Overloaded picture - **V2**

SYNC FAILURE
No vert. sync - **V3**
No horiz. sync - **V3, Rectifier (M3)**
No vert. or horiz. sync - **V3**

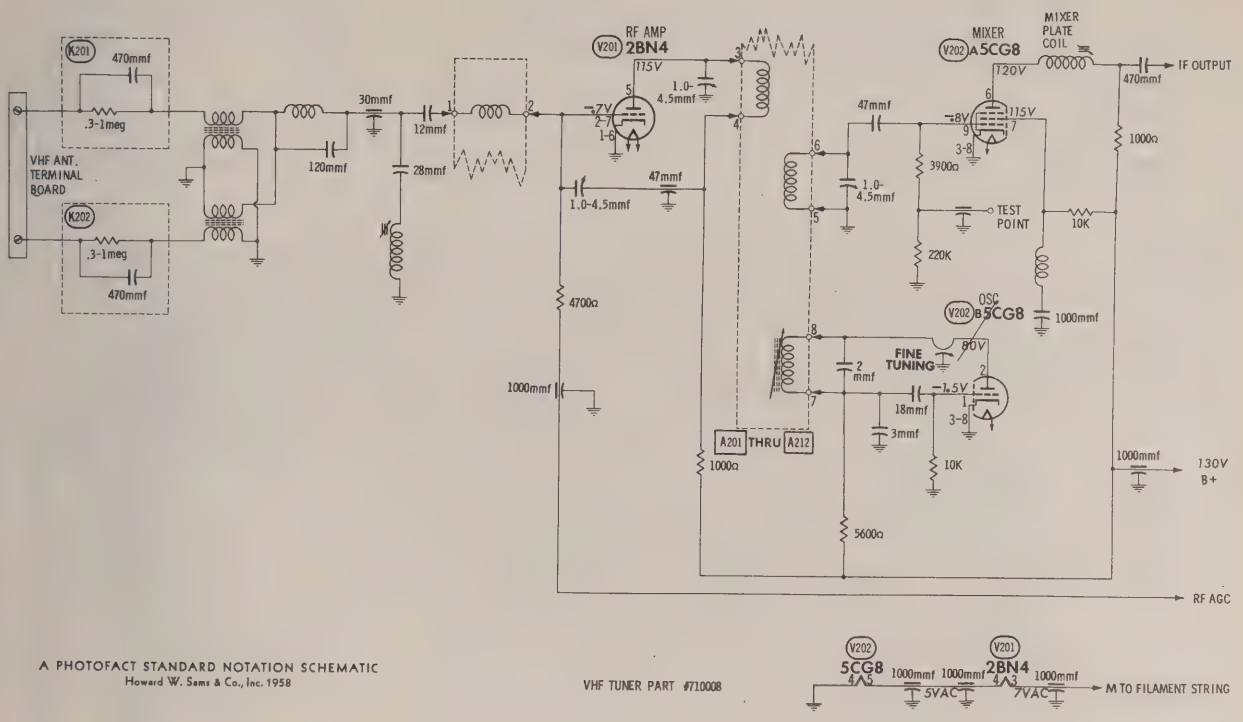
SWEEP FAILURE
No raster, has sound - **M3, V8, V9, V10, V11, V12**
No vertical deflection - **V4, V7**
Poor vert. linearity or foldover - **V4, V7**
Poor horiz. linearity or foldover - **V8, V9, V10**
Narrow picture - **V8, V9, V10, M1, M2**
Vert. off freq. - **V4, V7**
Horiz. off freq. - **V8**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





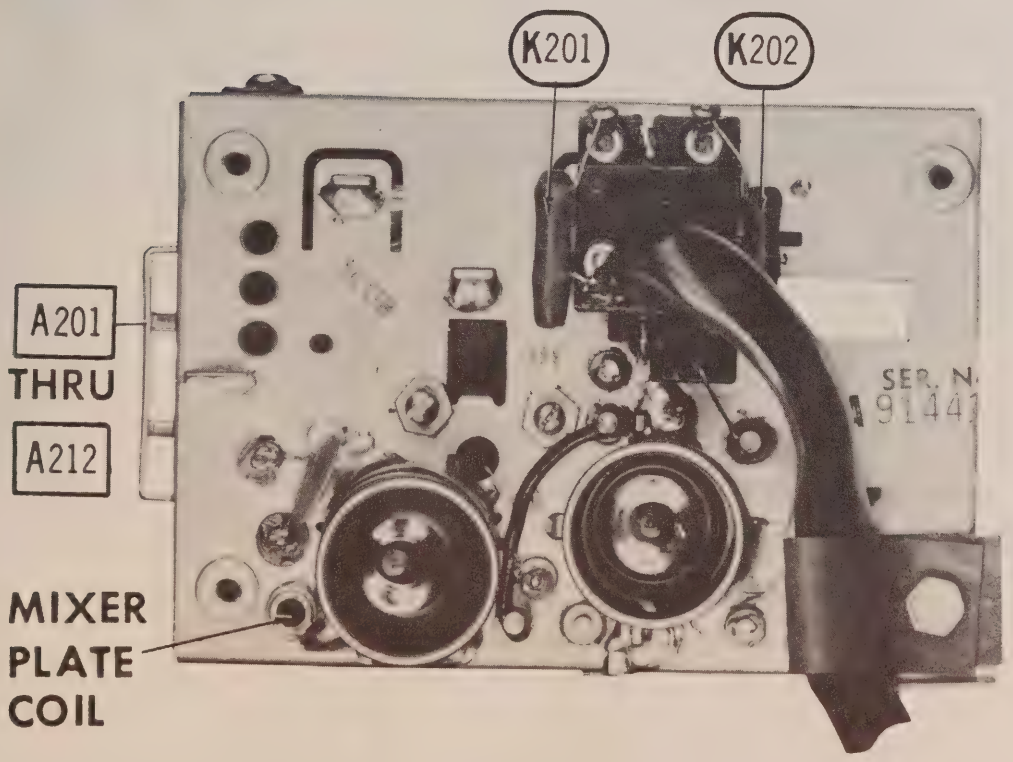
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



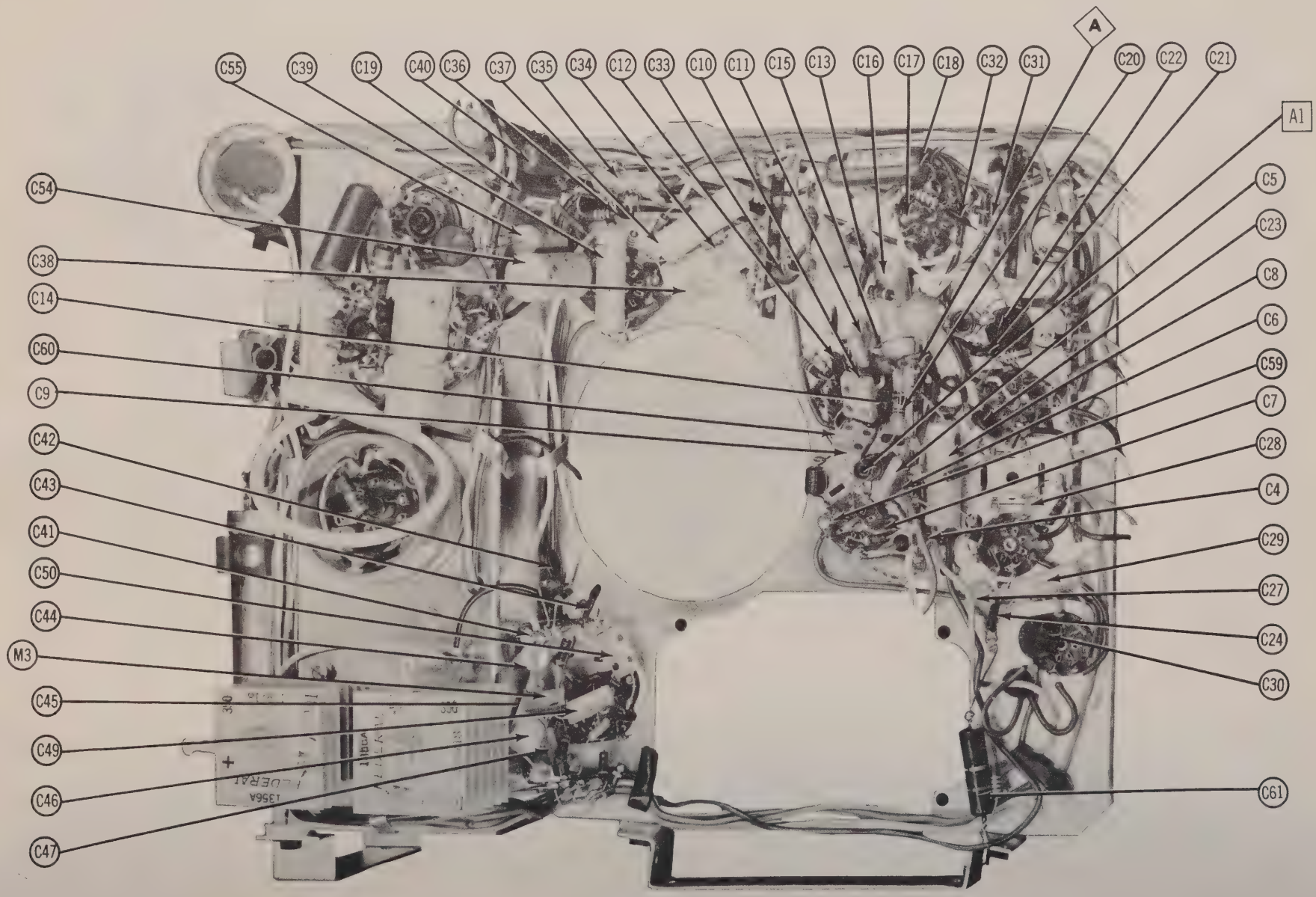
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER PART #710008

TUNER SCHEMATIC



RF TUNER-TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

SOUND IF ALIGNMENT

Set the Contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.005mfd	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to pin 2 (cathode) of 3DT6 (V5). Common to chassis.	A1, A2, A3	Detune A4 by turning slug fully counter clockwise. Adjust A1, A2 and A3 for maximum deflection. Attenuate generator output to maintain meter reading between 3.5 to 5 volts during this adjustment. Adjust A3 for maximum deflection. Attenuate generator output to maintain reading between 3.5 and 5 volts during this adjustment.
2.	"	High side to point (A). Low side to chassis. Increase generator output to maximum.	"	"	DC probe thru 10K to pin 5 (plate) of 3DT6 (V5). Common to chassis.	A4	Adjust A4 clockwise for MINIMUM deflection. Continue turning slug clockwise until a reading of 125 volts (± 3 volts) is obtained. Remove input signal and retouch A3 for maximum deflection.

VIDEO IF ALIGNMENT

Disable the high voltage by connecting the negative lead of a 60 volt bias supply to pin 5 (grid) of the Horizontal Output tube (V9). Positive to chassis.
Turn Contrast control fully counter clockwise.
Connect the negative lead of a 3 volt bias supply to point (B). Positive to chassis.
Detune A5, A6 and A7 by turning slugs to one extreme end of coil forms.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	Not used	44.75MC	Between any two channels	USE VTVM. DC probe thru 10K to point (A). Common to chassis. (Across video detector load).	Mixer Plate Coil & A5, A6, A7	Adjust for maximum deflection.
4.	"	"	44.75MC (10MC Swp)	45.75MC	"	Vert. Amp. thru 10K to point (A). Low side to chassis. (Across video detector load).		Retouch Mixer Plate Coil to place 45.75MC marker at 50% on response curve as in Fig. 1.
5.	"	"	"	43.55MC	"	"		Retouch A7 to place 43.55MC marker at 50% as in Fig. 1.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 12.

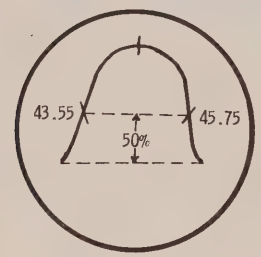


FIG.1

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st. Video IF Amp.	3CB6	
V2	2nd. Video IF Amp. 1st. Sound IF Amp. - Video Det. - AGC Rect.	3U8	
V3	Video Output - Sync Sep.	6AW8A	
V4	2nd. Sound IF Amp. - Vert. Mult.	3U8	
V5	Audio Det	3DT8	
V6	Audio Output	5AQ5	
V7	Vert. Mult. - Vert Output	5CG8	5CM8 *
V8	Horiz. Mult.	6CG7	
V9	Horiz. Output	12DQ8A	
V10	Damper	12AX4GTA	
V11	HV Rectifier	1B3GT	

* Alternate

PICTURE TUBE

ITEM No	REPLACEMENT DATA: HOFFMAN PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	NOTES
V14	17BZP4		17BZP4 ①	17BZP4 ③	① "Bluevarna" ③ "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP.	VOLT	HOFFMAN PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	180	150	857301	AFH1-31-75	XA40E6	FP131	TMS-34	S-105	TVL-1473
C2A	400	350	856904	AFH4-58-75	B0483	FP375 5	TMD-38	Q-221 5	*R2419
B	40	300			BR4025	TC85	TD-100-450		
C	40	250							
C3A	400	350	856904	AFH4-58-75	B0483	FP375 5	TMD-38	Q-221 5	*R2419
B	40	300			BR4025	TC85	TD-100-450		
C	40	250							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP	VOLT	HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-SI	
C5	.1	200		P288N-1	DF-104	CUB2P1		GEM-101	4TM-P1	
C6	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-DI	
C7	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C8	330			1469-00033		2AR5T33	CY10C330K		MS-322	10% ①
C9	470			1469-00047		5RS747	CY15C470K		MS-347	10% ①
C10	470			1469-00047		5RS747	CY15C470K		MS-347	10% ①
C11	470			1469-00047		5RS747	CY15C470K		MS-347	10%
C12	10000			BPD-01	DD-103	BYA10DI	ED-01	DC5JI	5HK-SI	
C13	10000			BPD-01	DD-103	BYA10DI	ED-01	DC5JI	5HK-SI	
C14	4.7			NPO-SI 4.7	TCZ-4R7	CTA4V4TC	TCO-4.7	ZT-5547	5TCC5-V4T	10%
C15	10			NPO-SI 10	D6-100	CTA6Q1C	GP-10	ZT-541	5TCC-Q1	10%
C16	1	200		P288N-1	DF-104	CUB4P1		GEM-201	4TM-P1	
C17	1000			SI 1	D6-104	L7R1	GP-1000	UC-541	5HK-DI	
C18	1	400		P488N-1	DF-503	CUB4P1		GEM-401	4TM-P1	
C19	.047	200		P288N-047		CUB2S47		GEM-4147	4TM-S47	
C20	10			NPO-SI 10	D6-100	CTA6Q1C	GP-10	ZT-541	5TCC-Q1	10%
C21	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C22	10000			BPD-01	DD-103	BYA10DI	ED-01	DC5JI	5HK-SI	
C23 A	4000			BPD-2X004	DD-402	BYC5DD4	EDZ-004	DCD5J4	5HK-4D4	
B	4000				DD-402					
C24	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-DI	
C25	15				TCZ-15	C10Q15C	TCO-15			NPO 10%
C26	.047	200		P288N-047	DF-503	CUB2S47		GEM-4147	4TM-S47	
C27	4700			BPD-0047	DD-472	BYA10D47M	ED-0047	UC-5247	5HK-D47	
C28	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-DI	
C29	01	400		P488N-01	DD-103	CUB4S	GP-10000	GEM-411	4TM-S1	
C30	4700			BPD-0047	DD-472	BYA10D47M	ED-0047	UC-5247	5HK-D47	
C31	.0022	600		P688N-0022	DD-222	CUB5D22	ED-0022	GEM-6222	5TM-D22	
C32	270				MD-271		ED-270			10%
C33	820						ED-820			10%
C34	2200			BPD-0022	DD-222	BYA10D22	ED-0022		5HK-D22	
C35	.0039	600					ED-0039			10%
C36	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-DI	
C37	.047	400								10%
C38	1	400								10%
C39	01	1600				CUB16S1	ED-01	GEM-1611	MB-S1	
C40	.047	200		P288N-047	DF-503	CUB2S47		GEM-4147	4TM-S47	
C41	15			NPO-S1 15	D6-150	CTA6Q15C	GP-15	UC-5415	5TCC-Q5	10%
C42	24				D6-240	L10Q24	ED-24			
C43	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-DI	
C44	.0047	200						GEM-16247		10%
C45	.001	600		P688N-001	DD-102	CUB5D1	GP-1000	GEM-621	5TM-D1	
C46	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	4TM-P1	
C47	47			1469-000047		2ER5Q47	CY10C470K		MS-447	10%
C48	3900			1464-0039		1R5D39	CY10C392K		MS-339	10%
C49	330			1469-00033		5RS733	CY15C331K		MS-333	10%
C50	680			1469-00068		1RS768	CY15C681K		MS-368	10%
C51	820					L10T82	ED-820			10%
C52	1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C53	.22	600		P688N-22		CUB6P22		GEM-602	6TM-P22	
C54	1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C55	.047	600								10%
C56	170	3000								5%
C57	95	3000								5%
C58	1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C59	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-DI	
C60	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC5JI	5HK-DI	
C61	.01	600		P688N-01	DD-103	CUB6S1	GP-10000	GEM-611	6TM-S1	

① Some versions may use a single 220mmf 10% in this application.

CONTROLS

ITEM No	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: HOFFMAN PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	330K	½	800018	B-80	A47-500K-Z	Q13-132	U48	Volume
B	Shaft			Not Req.	K38-3	Not Req.	Not Req.	
C	Switch			KCB-1 or KR-1 *	8WR-12	76-1	US-26	
R2A	1.5meg	½	800017	B-742	A47-1.5meg	QJ1-138	U156	Vert. Hold
B	Shaft			Not Req.	[illegible] -8	Not Req.	Not Req.	
R3A	150K	½	800018	B-43	A47-150K-S	QJ1-338	U43	Brightness
B	Shaft			Not Req.	K38-3	Not Req.	Not Req.	
R4A	500Ω	½	800019	B-4	A47-500-S	QJ1-103	U2	Contrast
B	Shaft			Not Req.	K38-3	Not Req.	Not Req.	
R5A	4meg	½	800020	AB-75	A47-4meg-S	QJ1-139	PTA26L	Height
B	Shaft			AK-19	K38-3	TQ	Not Req.	
R8A	100K	½	800022		A47-100K-S	QJ1-131		Vert. Lin.
B	Shaft				K38-3	TQ		

* Use KR with CRL "red label" control; KB with "blue label" control.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No	RATING: OHMS	WATT	HOFFMAN PART No	NOTES
R7	150Ω			
R8	560Ω			
R9	1000Ω			
R10	1500Ω			
R11	180Ω			
R12	220Ω			
R13	1meg			
R14	4.4meg			Note 1
R15	6800Ω			
R16	1meg			
R17	6800Ω	1		
R18	470K			
R19	22K			
R20	68K			
R21	100K			
R22	1000Ω			
R23	22K			
R24	1K			
R25	1.5meg			
R26	100K			
R27	560K			
R28	4700Ω			
R29	1000Ω			
R30	330Ω	1		Note 2
R31	15K			
R32	330K			
R33	1.5meg			
R34	39K			
R35	82K			
R36	68K			
R37	22K			
R38	470K			

ITEM No	RATING: OHMS	WATT	HOFFMAN PART No	NOTES
R39	47K			
R40	1.5meg			
R41	1.5meg			
R42	150K			
R43	39K			
R44	47K			
R45	4200Ω			
R46	2.5Ω Cold			
R47	220Ω			
R48	330K			
R49	330K			
R50	4700K			
R51	1meg			
R54	82K			
R53	10K			
R54	7500 5%			
R55	150K			
R56	82K			
R57	4700Ω			
R58	330K	1		
R59	100Ω			
R60	470K			
R61	250Ω			
R62	10K	2		Note 4
R63	220Ω			
R64	2.2Ω			
R65	4700Ω	1		
R66	2500Ω	7		
R67	7.5Ω			
R68	38Ω	40		
R69	38Ω	20		
R70	330K			

Note 1. Temperature compensating resistor.
Note 2. Some versions may use 220Ω in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: HOFFMAN PART No.	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T1	Vert. Output	728004							
T2A	Yoke-Horiz. (18.6MH)	790005				DY-47A ①		Y-80-J	
B	(10^6)-Vert. (12.6MH)					①			
M5	Rear Cover & Centering Device	964003							
T3	Horiz. Output	782005-1				HO-290 *	FLY-100 *	D-95 *	

① Use original rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5				5	5	5
4				4	4	4
3				3	3	3
1				1	1	1
Spoiler Turn →						2

② If insufficient width, add approximately 50mmf. ③ 4KV MINIMUM across horiz. yoke.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: HOFFMAN PART No.	Halldorson PART No	Ment PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No.	NOTES
T4	9000Ω	3-4Ω	724001		A-4932①		A-3879 ①	46S83	S-11X	1. Drill new mounting holes

SPEAKER

ITEM No	TYPE: SIZE	FIELD	V C IMP	REPLACEMENT DATA: HOFFMAN PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	708004	4A07	

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA: HOFFMAN PART No.	Meissner PART No	Merit PART No	Miller PART No	Ram PART No	NOTES
L1	1st. Video IF	762001	17-4534	TV-131		VF-4	
L2	RF Choke	750004					27 Microhenries
L3A	2nd. Video IF	762003					
B	1st. Sound IF						
L4	3rd. Video IF	762004	17-5004	TV-136	6434		
L5	2nd. Sound IF	762004					
L6	RF Choke	750005	19-1005	BC-586	4612		10 Microhenries
L7	Shunt Peaking Coil	771019		TV-207	8156		800 Microhenries
L8	Series Peaking Coil	771030	19-3450	TV-185	6181	VP-6	450 Microhenries
L9	3rd. Sound IF	762003	17-3495	TV-113	6403	SF-2	
L10	Quadrature Coil	774001	20-1007	TV-121	1480		
L11	Fil. Choke	750006	19-1001	BC-562	6604		1.5 Microhenries

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI	SEC	REPLACEMENT DATA: HOFFMAN PART No.	Meissner PART No	Merit PART No	Miller PART No.	Ram PART No	Thordarson PART No	NOTES
L12	53Ω		768006	19-1516	TV-163	6210	H-104	HB-5	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ^(-6)A	REPLACEMENT DATA: HOFFMAN PART No.	Halldorson PART No.	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
L13	290A	22Ω	.6 @ y.	734004						C-27X

RECTIFIERS

ITEM No	RATING: CURRENT (Measured)	REPLACEMENT DATA: HOFFMAN PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	290A	744001 ①	1356A ①	1N1007 ①	MR350 ①	350A ① M500 ③	① Selenium type. ② Germanium type. ③ Silicon type. ④ Two required.
M2	290A	744001 ①	1356A ①	1N1007 ②	MR350 ①	350A ③ M500 ③	
M3		744002 ①	KG615 ①		171 ① ③		

MISCELLANEOUS

ITEM No	PART NAME	HOFFMAN PART No.	NOTES
M4	Tuner	710008	VHF. Ch. 327
	Tuner	712006	UHF-VHF Ch. 327U
M5	Centering Device	964003	Includes yoke rear cover

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

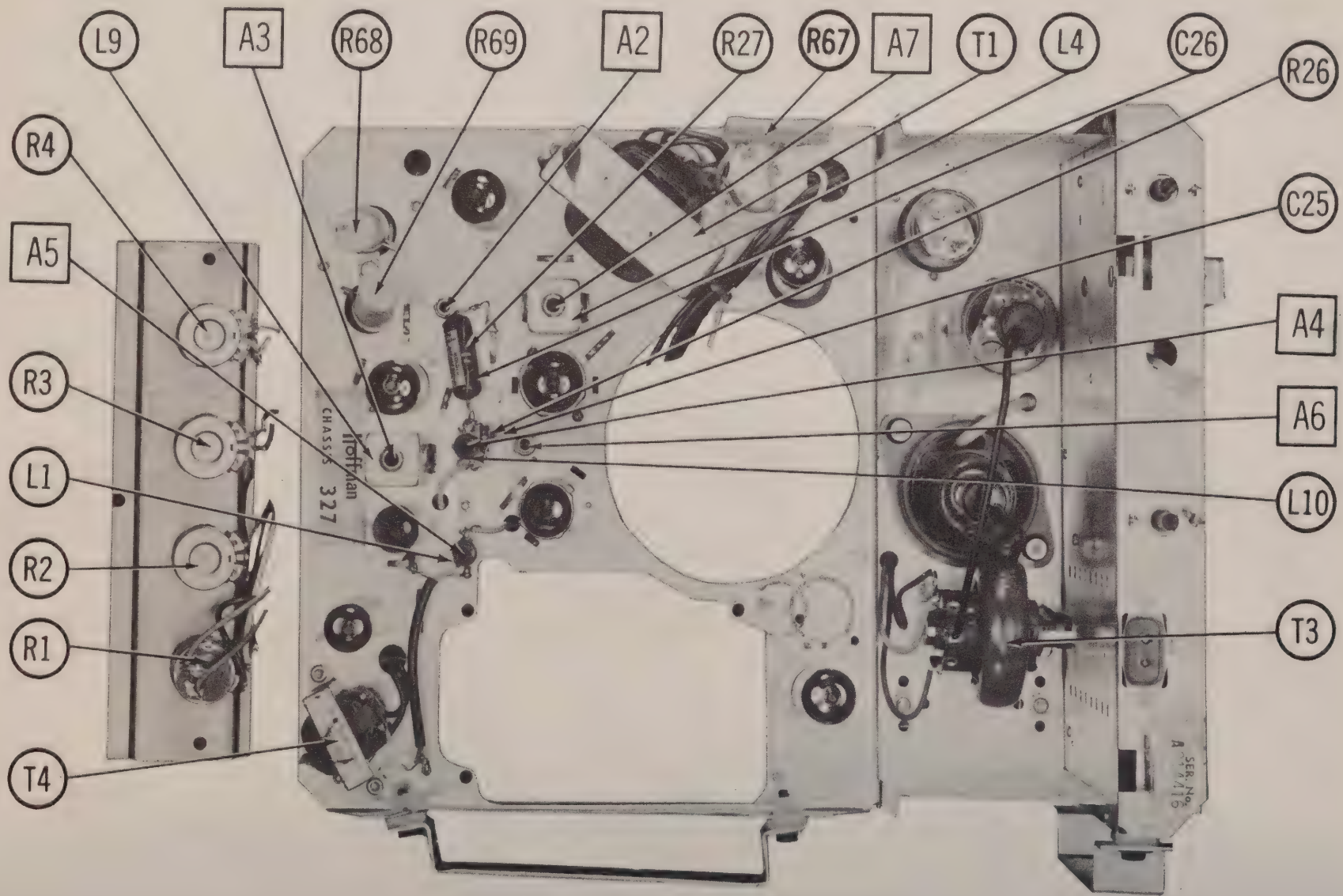
NAME	PART NO.	DESCRIPTION
Safety Glass	408003	
Knob	480059	Channel Selector
Knob	481001	VHF Fine Tuning
Knob	480050	UHF Fine Tuning
Knob	480054	UHF, 1st. Section
Knob	480040	UHF, 2nd. Section
Knob	500025	Control (4 used)
Cabinet	340002	Models B1227, U
Cabinet	340003	Models B1227, U
Cabinet	340004	Models P1227, U
Cabinet	340001	Models W1227, U

WIRING DATA

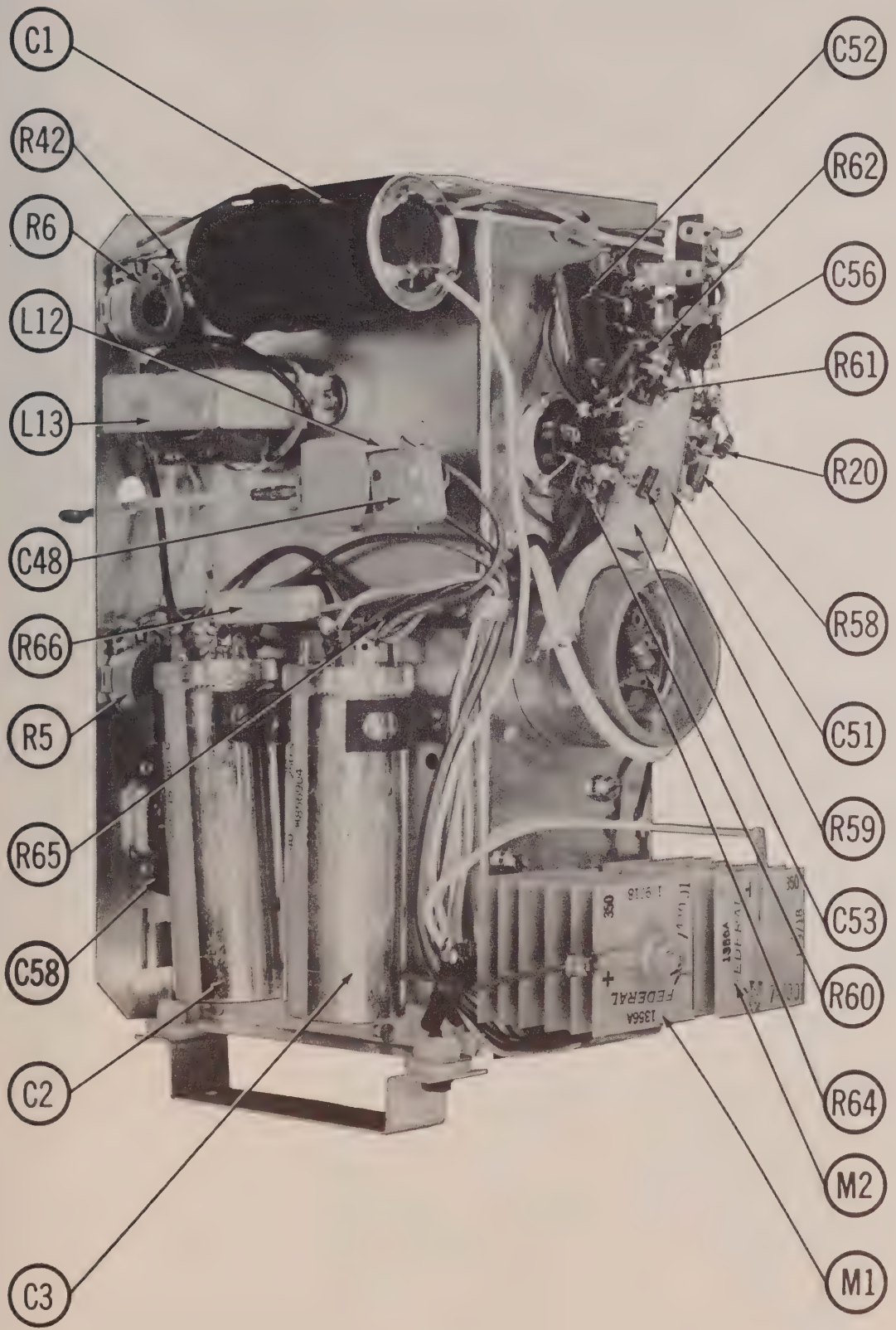
High Voltage Lead	Use BELDEN No. 8859
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

HOFFMAN MODELS B1227, U, M1227, U, P1227, U, W1227, U (Ch. 327, U)

FOLDER 2



CHASSIS TOP VIEW



CHASSIS - SIDE VIEW

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K. (Across video detector load).	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A202	
			201MC	199.25MC 203.75MC	11		A203	
			195MC	193.25MC 197.75MC	10		A204	
			189MC	187.25MC 191.75MC	9		A205	
			183MC	181.25MC 185.75MC	8		A206	
			177MC	175.25MC 179.75MC	7		A207	
			85MC	83.25MC 87.75MC	6		A208	
			79MC	77.25MC 81.75MC	5		A209	
			69MC	67.25MC 71.75MC	4		A210	
			63MC	61.25MC 65.75MC	3		A211	
			57MC	55.25MC 59.75MC	2		A212	

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

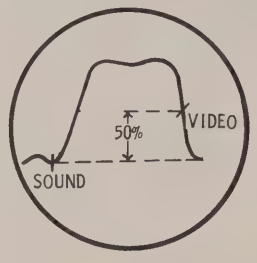


FIG. 201

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

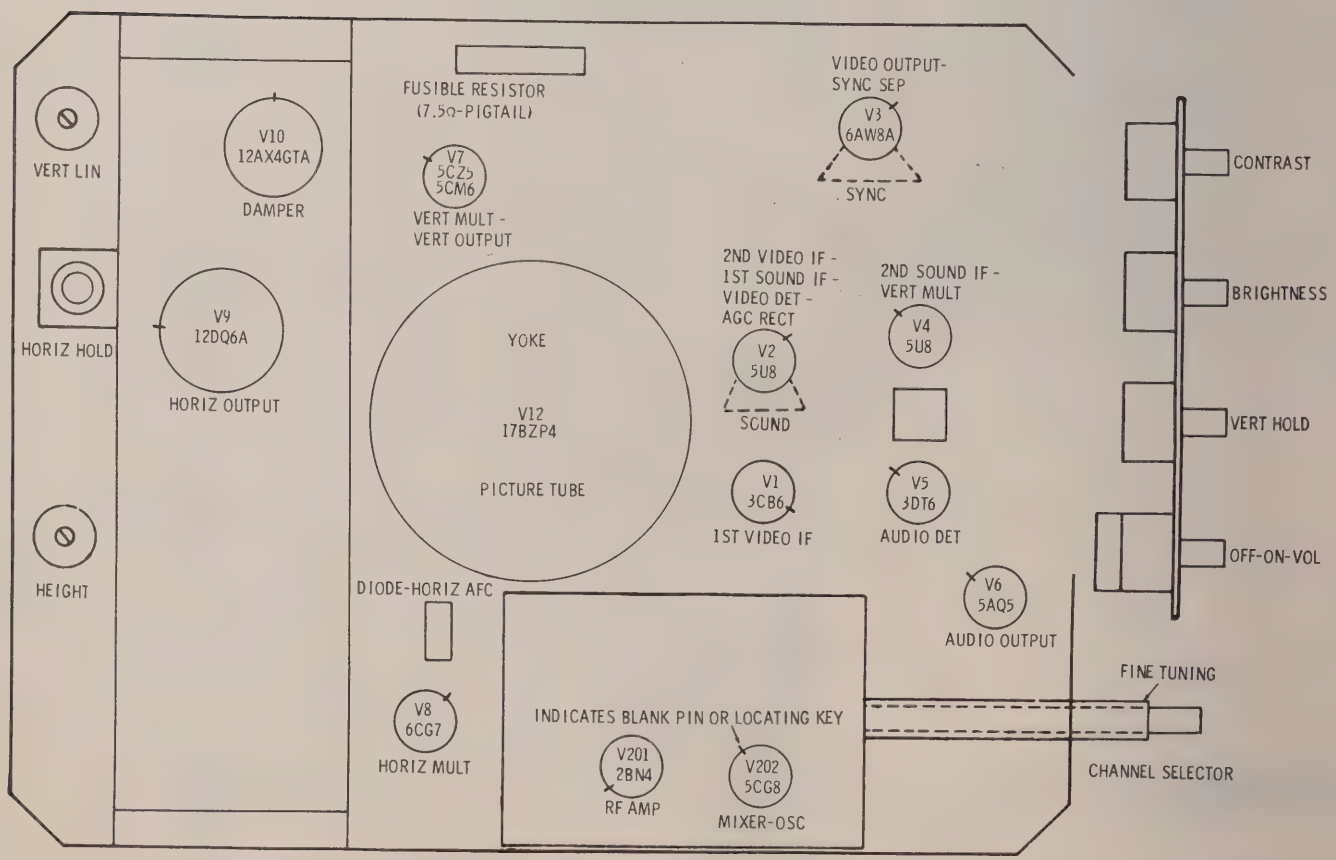
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	HOFFMAN PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .3-1meg		Centralab Sprague	RC-471 R-9177
K202	Antenna Isolation	470mmf, .3-1meg		Centralab Sprague	RC-471 R-9177

RESISTANCE MEASUREMENTS

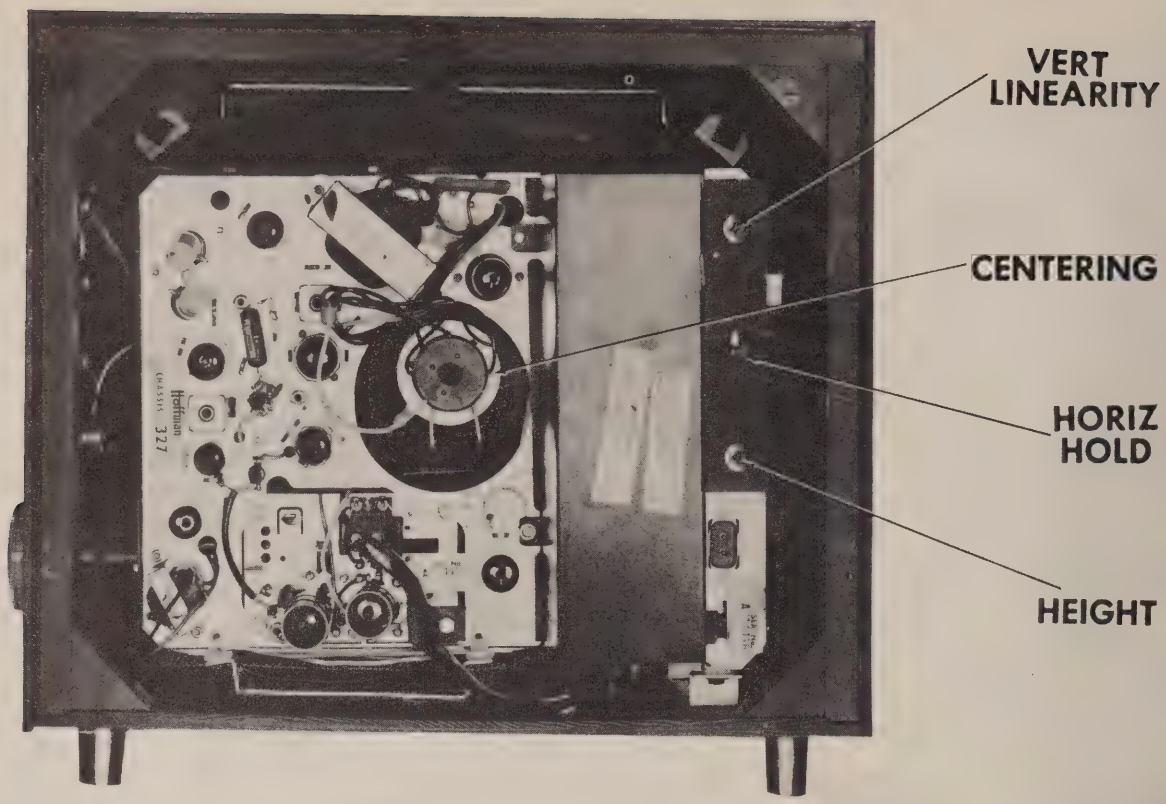
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3CB6	3.2meg	56Ω	14Ω	13Ω	†2600Ω	†2600Ω	0Ω		
V2	5U8	1meg	.5Ω	†2600Ω	13Ω	12Ω	†2600Ω	180Ω	220Ω	7000Ω
V3	6AW8A	0Ω	1.8meg	†28K	12Ω	10.5Ω	•700Ω	1meg	†2500Ω	†6800Ω
V4	5U8	‡1.8meg	100K	†17K	17Ω	16Ω	†3500Ω	0Ω	0Ω	•1.2meg
V5	3DT6	5.5Ω	1000Ω	16Ω	15Ω	‡1.5meg	†7200Ω	560K		
V6	5AQ5	0Ω	330Ω	14Ω	15Ω	†370Ω	†22Ω	0Ω		
V7	5CZ5	†22Ω	TP	•1.6meg	8Ω	9.5Ω	•1.6meg	0Ω	NC	†342Ω
V8	6CG7	†86K	150K	750Ω	10.5Ω	9.5Ω	†14K	1.4meg	750Ω	0Ω
V9	12DQ6A	NC	4.5Ω	TP	†10K	470K	TP	2Ω	0Ω	TOP CAP ‡19Ω
V10	12AX4GTA	NC	NC	¶	NC	†0Ω	NC	4.5Ω	7Ω	
V11	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡344Ω
V12	17BZP4	7Ω	22K	‡68K	‡68K	NC	NC	•490K	8Ω	
V201	2BN4	0Ω	3.2meg	2Ω	1.5Ω	†3500Ω	0Ω	3.2meg		
V202	5CG8	10K	†8000Ω	0Ω	0Ω	1.5Ω	†3500Ω	†11K	0Ω	220K

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M2.
‡ MEASURED FROM PIN 3 OF V10.
NC NO CONNECTION
TP TIE POINT



BOTTOM VIEW

TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast controls for a normal picture.

Turn the Horizontal Hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counter clockwise until the picture just falls into sync.

SET 398 FOLDER 3

RCA VICTOR CHASSIS KCS113A,
B, E, F, H, K, M, N, P, R

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type knobs from the side.

2. Remove 5 clips holding the rear cover. Remove the rear cover.

3. Remove 2 metal screws holding the control panel to the side of the cabinet.

4. Remove the picture tube socket, yoke plug, HV lead and speaker leads. On models with remote control remove remote control plug.

5. Remove remote control switch assembly and corner bracket if so equipped.

6. Remove 2 hex nuts holding the top of the chassis.

7. Remove 2 chassis bolts at the bottom edge of the chassis.

8. Remove the chassis.

MODEL 21T8202 (Ch. KCS113A)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21T8202, 21T8205, 21T8207, 21T8265, 21T8267	KCS113A
		21T8202U, 21T8205U, 21T8207U, 21T8265U, 21T8267U	KCS113B
		21T8425, 21T8426, 21T8427, 21T8428, 21T8445, 21T8447, 21T8448, 21T8465, 21T8466, 21T8467, 21T8468, 21T8485, 21T8486, 21T8487	KCS113E
		21T8425U, 21T8426U, 21T8427U, 21T8428U, 21T8445U, 21T8447U, 21T8448U, 21T8465U, 21T8466U, 21T8467U, 21T8468U, 21T8485U, 21T8486U, 21T8487U	KCS113F
		21RT8202	KCS113H
		21RT8425	KCS113K
		24T8325, 24T8327, 24T8335, 24T8337	KCS113M
		24T8325U, 24T8327U, 24T8335U, 24T8337U	KCS113N
		21T8375, 21T8376, 21T8377, 21T8395, 21T8397, 21T8405, 21T8407	KCS113P
		21T8375U, 21T8376U, 21T8377U, 21T8395U, 21T8397U, 21T8405U, 21T8407U	KCS113R

MANUFACTURER Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N.J.
TYPE SET Television Receiver
TUBES Seventeen
POWER SUPPLY 110-120 Volts AC, 60 Cycle RATING 185 Watts, 1.6 Amp. @ 117 Volts AC
TUNING RANGE Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 12 adjustment is located at 3 o'clock, proceed in a counter clockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Table Models: Remove 5 metal screws holding the trim strip at the top edge of the safety glass. Remove the trim, tilt glass out at the top and lift up to remove.
Console Models: Remove the trim strips at the top and bottom of the safety glass by prying off starting at the extreme ends. Slide top glass retainer to right to release, the bottom to the left.
NOTE: Use only a soft cloth and "Windex" or similar cleaning agent to clean safety glass.

FOCUS

No provision is made to vary the focus on this receiver.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Adjust the Horizontal Hold control to lock the picture in horizontally. If synchronization cannot be obtained see "Horizontal Sweep Circuit Adjustments" on page 19.

FUSE DEVICE

A 7.5Ω fusible resistor (R119) is used for Horiz. Sweep Circuit protection. (For location, see tube placement chart).

CENTERING

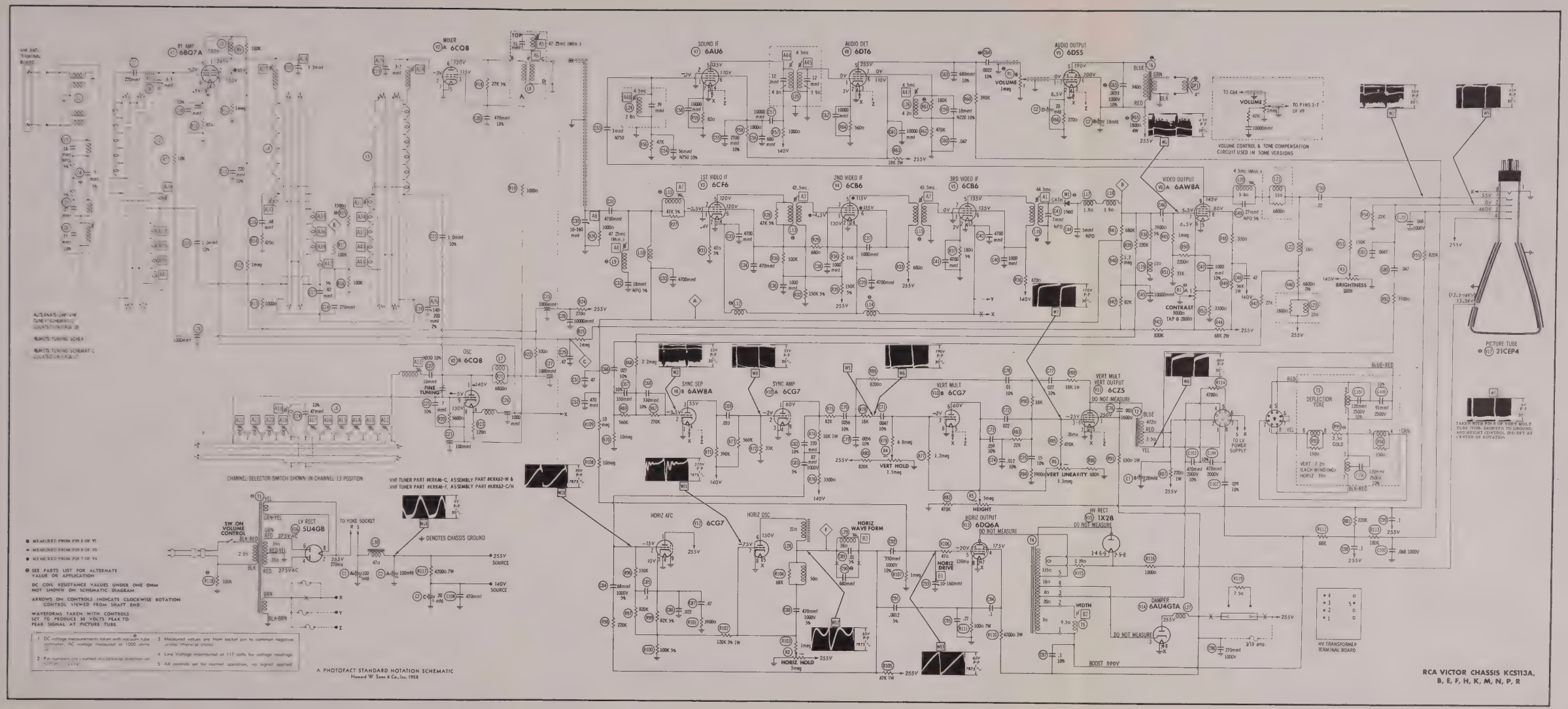
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

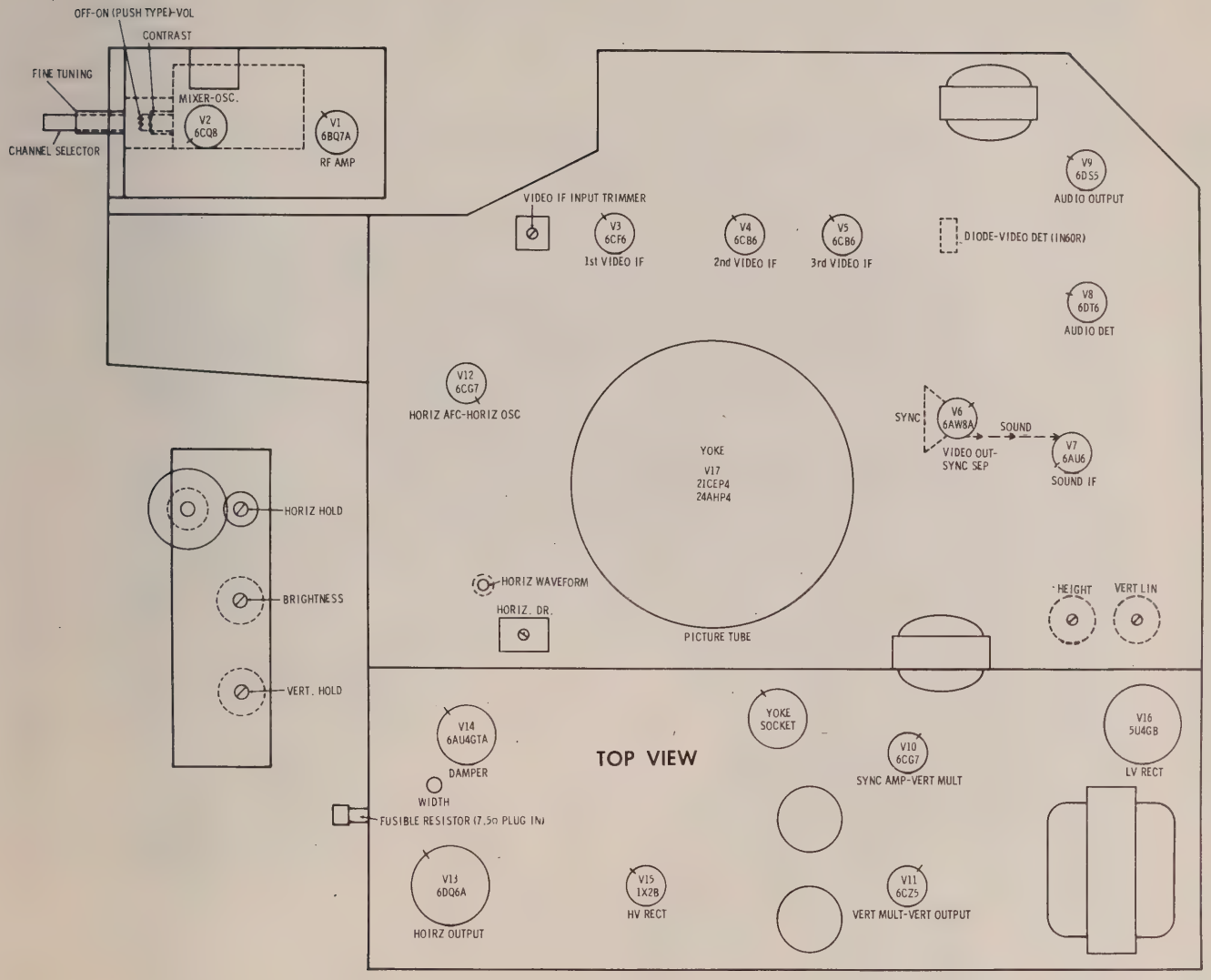
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H338

SET 398 FOLDER 3


RF AMP V7 6BQ7A
MIXER V2A 6CQ8
OSC V2B 6CQ8
SOUND IF V7 6AU6
AUDIO DET V8 6DT6
AUDIO OUTPUT V9 6DS5
1ST VIDEO IF V2 6CF6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V1 6CB6
VIDEO OUTPUT V6A 6AW8A
SYNC SEP V6B 6AW8A
SYNC AMP V10A 6CG7
VERT MULT V10B 6CG7
VERT MULT VERT OUTPUT V11 6CZ5
HORIZ AFC 6CG7
HORIZ OSC
HORIZ OUTPUT V13 6DQ6A
HV RECT V15 1X2B
LV RECT V16 5U4GB
DAMPER V14 6AU4GTA
PICTURE TUBE V17 21CEP4
VOLUME
CONTRAST
BRIGHTNESS
HEIGHT
VERT LINEARITY
VERT HOLD
HORIZ HOLD
HORIZ DRIVE
WIDTH
BOOST 590V
FINE TUNING
SW ON VOLUME CONTROL
DEFLECTION YOKE
TO LV POWER SUPPLY
HV TRANSFORMER TERMINAL BOARD
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DENOTES CHASSIS GROUND
255V SOURCE
140V SOURCE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
RCA VICTOR CHASSIS KCS113A, B, E, F, H, K, M, N, P, R

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

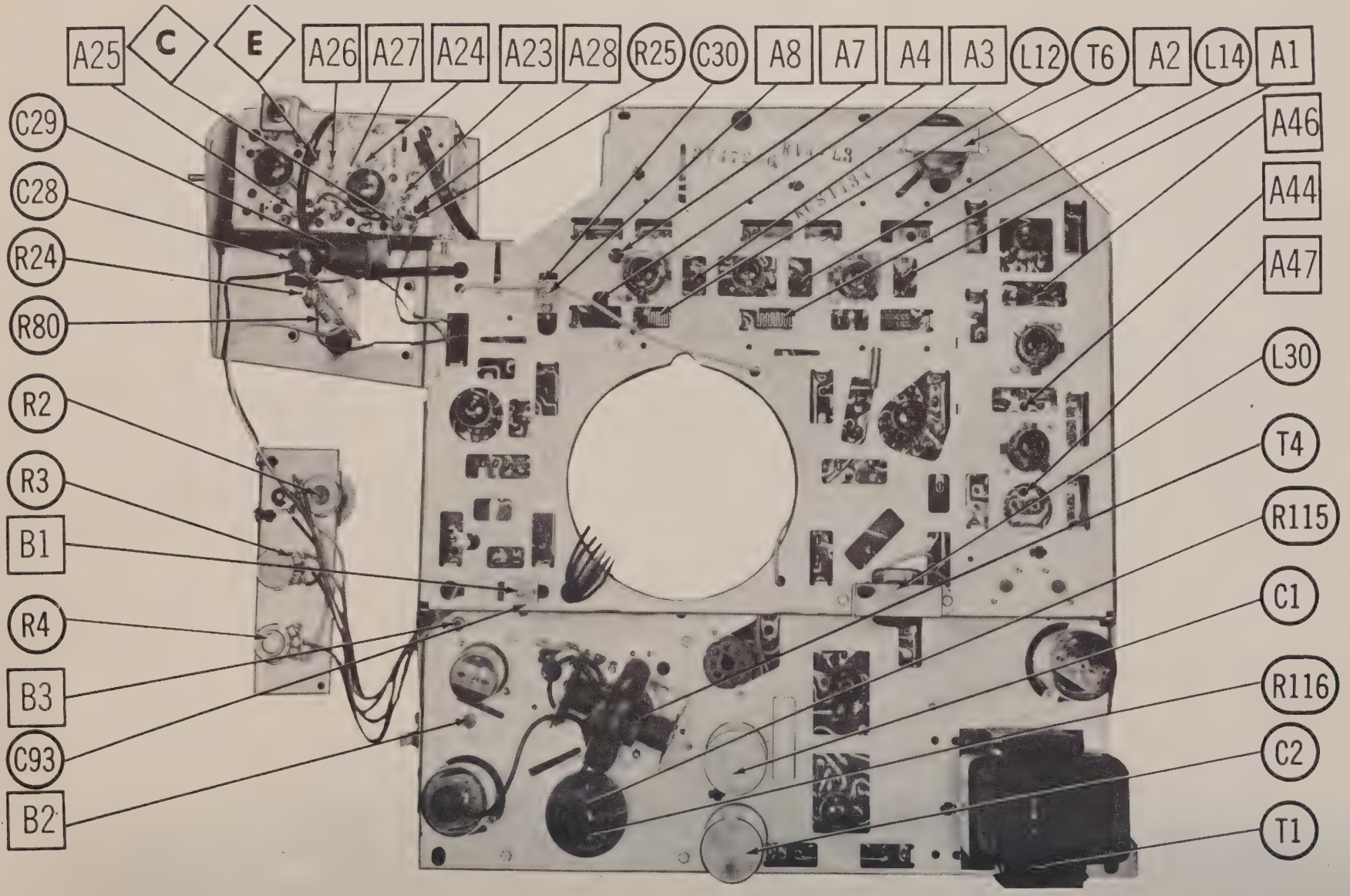
The following chart lists tubes whose failures are most likely to produce the indicated symptoms.
Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V16**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M1), V8**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V17**
Has pic, no sound - **V7, V8, V9**

SYNC FAILURE
No vert. sync - **V6, V10**
No horiz. sync - **V6, V10, V12**
No vert. or horiz. sync - **V6, V10**

SWEEP FAILURE
No raster, has sound - **V12, V13, V14, V15, V17**
No vertical deflection - **V10, V11**
Poor vert. linearity or foldover - **V10, V11**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, V16**
Vert. off freq. - **V10, V11**
Horiz. off freq. - **V12**



CHASSIS TOP VIEW

HORIZ PRINTED BOARD

VERT & SYNC PRINTED BOARD

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 30 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 4 volt bias supply to point Ⓐ. Positive to chassis.
Attenuate generator to maintain approximately 3 volts DC at point Ⓐ.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc tube (V2). Low side to chassis	44.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point Ⓐ. Low side to chassis	A1	Adjust for maximum deflection.
2	"	"	45.5MC	"	"	A2	"
3	"	"	43.0MC	"	"	A3	"
4	"	"	47.25MC	"	"	A4, A5	Adjust for MINIMUM deflection

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 4 volt bias supply to point Ⓐ. Positive to chassis.
Connect the negative lead of a 3 volt bias supply to point Ⓑ. Positive to chassis.
Connect a 180Ω resistor from pin 5 to pin 6 of the 1st Video IF Amp. (V3).
If a separate marker generator is used, couple loosely to the sweep output cable.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5	Direct	High side to ungrounded tube shield floating over mixer-osc tube (V2) Low side to chassis.	44 0MC (20MC Swp)	42.5MC 45.75MC	Any non-interfering channel	Vert Amp. thru detector probe to pin 8 (plate) of 6CF8 (V3) Low side to chassis	A6, A7, A8	Set sweep output for .8 volts peak to peak on scope. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Remove detector probe and 180Ω resistor.
6	"	"	"	42.5MC 45.0MC 43.75MC	"	Vert Amp. to point Ⓑ Low side to chassis	A1, A2, A3	Set sweep output for .5 volts peak to peak on scope. Retouch A1 thru A3 for response similar to Fig. 2.
7	Fig. 3	High side thru pad (Fig. 3) to an ungrounded tube shield floating over mixer-osc tube (V2) Low side to chassis.	Not used	45.75MC (Unmod)	"	1ST VTVM. Leave scope connected as in step 6 DC probe to point Ⓐ Common to chassis	Signal Level	Adjust signal generator level to provide exactly 1.5 volts on VTVM. Remove pad.
8.	Direct	High side to ungrounded tube shield floating over mixer-osc tube (V2). Low side to chassis	"	41.25MC	"	"	A1, A3	Adjust to 1.0 to 1.5 volts DC on VTVM while maintaining response as in step 6.

UHF IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓑ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Fig. 4	High side thru network (Fig. 4) to point Ⓒ. Low side to chassis.	44.0MC (20MC Swp)	41.25MC 45.75MC	Any non-interfering channel	Connect a 330mmf capacitor and 180Ω resistor in series from pin 8 (plate) of 6CW8 (Mixer-osc. tube) to chassis with the resistor to chassis. Connect Vert. amp. of scope to junction of capacitor and resistor. Low side to chassis.	A9, A10	Set sweep generator output for .5 volts peak to peak on scope. Adjust A9 and A10 for maximum gain and symmetry similar to Fig. 8.
10.	Two 180Ω Carbon Resistors	Across UHF antenna terminals with 180Ω in each lead. Reconnect cable between UHF and VHF tuners. Couple separate marker generator loosely to grid of 1st. Video IF Amp. (V3).	Tune across entire UHF range.	42.5MC 46.0MC 45.75MC	Tune across entire UHF range.	Vert. Amp. to point Ⓑ. Low side to chassis.		Use only enough sweep generator output to provide a usable pattern on scope. Check tracking across UHF band if necessary retouch A9 and A10 for response similar to Fig. 8.

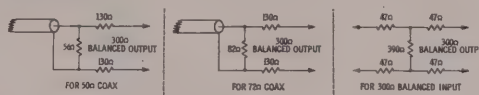


FIG. 7

FIG. 8

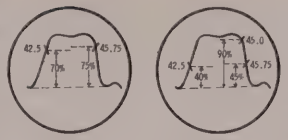


FIG. 1 FIG. 2

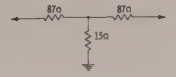


FIG. 3

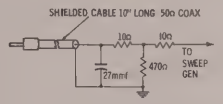


FIG. 4

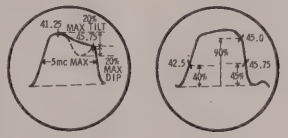


FIG. 5 FIG. 6

VHF TUNER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓑ. Positive to chassis.
Set scope to maximum gain.
Disconnect the link cable from the IF output jack. Connect a 39Ω resistor across a dummy jack and plug in the place of the IF output cable.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the fine tuning to the center of its range.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Fig. 7	Across antenna terminals thru pad (Fig. 7).	Not used	357MC	13	Vert. Amp. thru diode probe to point Ⓒ. Low side to chassis	A11	Adjust for zero beat on scope
12	"	"	"	251MC	12	"	A12	"
13.	"	"	"	249MC	11	"	A13	"
14.	"	"	"	239MC	10	"	A14	"
15	"	"	"	233MC	9	"	A15	"
16.	"	"	"	227MC	8	"	A16	"
17.	"	"	"	221MC	7	"	A17	"
18.	"	"	"	129MC	6	"	A18	"
19.	"	"	"	123MC	5	"	A19	"
20.	"	"	"	113MC	4	"	A20	"
21.	"	"	"	107MC	3	"	A21	"
22.	"	"	"	101MC	2	"	A22	"
23.	"	"	183MC	181.25MC 185.75MC	8	"	A23, A24, A25, A26	Adjust for maximum gain and symmetry of response similar to Fig. 8 with markers as shown. Adjust A23 for gain, A24 for proper marker positions, A25 for proper tilt and A26 for proper bandwidth.
24.	"	"	213MC	211.25MC 215.75MC	13	"	A27, A28	Adjust for maximum gain and symmetry of response similar to Fig. 8. with markers as shown. A27 controls marker position and A28 controls tilt. Retouch A26 for proper bandwidth.
25.	Repeat steps 23 and 24 for proper tracking and response on all channels from 13 to 7. Repeat step 11. Turn off generator and measure oscillator injection voltage at point Ⓒ with VTVM. The reading should be between -2.5 and -3.5 volts. If outside these limits, replace the mixer-oscillator tube and repeat steps 11 thru 24.							
26	Repeat step 18							
27.	Fig. 7	Across antenna terminals thru pad (Fig. 7).	85MC	83.25MC 87.75MC	6	Vert. Amp. thru diode probe to point Ⓒ. Low side to chassis.	A29, A30, A31	Adjust for maximum gain and symmetry of response similar to Fig. 8 with markers as shown. Adjust A29 for maximum gain, A30 for marker positions and A31 for proper tilt.
28.	"	"	79MC	77.25MC 81.75MC	5	"	A32, A33, A34	If necessary, adjust appropriate coil for response similar to Fig. 8.
29.	"	"	69MC	67.25MC 71.75MC	4	"	A35, A36, A37	"
30.	"	"	63MC	61.25MC 65.75MC	3	"	A38, A39, A40	"
31.	"	"	57MC	55.25MC 59.75MC	2	"	A41, A42, A43	"

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ. Positive to chassis.
Set meter for negative voltage readings

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
32.	.001mfd	High side to point Ⓓ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru diode detector (Fig. 9) to pin 7 (3rd. grid) of 6DT8 (V8). Common to chassis. Connect scope across voice coil of speaker.	A44, A45	Adjust for maximum negative DC voltage on VTVM. Use only enough generator output to provide a usable indication on VTVM. Peak with maximum core separation.
33.	"	"	"	"	"	A46	Use only enough generator output to provide a usable indication on VTVM. Peak with maximum core separation.
34	Disconnect the diode detector circuit. Turn off signal generator. Tune in strongest TV signal in the area and set volume control for normal volume. Set A47 so that core is flush with top of coil form. Observe the scope and listen to the sound. Adjust A47 clockwise to peak output. Continue clockwise to a second louder peak and adjust for maximum output at this second peak.						

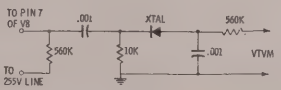


FIG. 9

RCA VICTOR CHASSIS KCS113A, B, E, F, H, K, M, N, P, R

FOLDER 3

ALIGNMENT INSTRUCTIONS (cont)

ALTERNATE SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ. Positive to chassis.
Set meter for negative voltage readings.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
32.	.001mfd	High side to point Ⓑ. Low side to chassis.	Not used	4.5MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe thru diode detector (Fig. 9) to pin 7 (3rd. grid) of 6DT6 (V8). Common to chassis.	A44, A45	Adjust for maximum negative DC voltage on VTVM. Use only enough generator output to provide a usable indication on VTVM. Peak with maximum core separation.
33.	"	"	"	"	"	"	A46	Use only enough generator output to provide a usable indication on VTVM.
34.	"	"	4.5MC (400∿ FM Mod. 15KC Swp)	Not used	"	USE SCOPE. Across voice coil of speaker.	A47	Adjust for maximum 400∿ indication on scope. Use only enough signal to produce .7 volts peak to peak on scope when A47 is peaked.
35.	"	"	"	"	"	"		Decrease signal input to MINIMUM usable level and retouch A44, A45 and A46 for symmetrical breakout similar to Fig. 10.

4.5MC TRAP ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ. Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
36.	.001mfd	High side to point Ⓑ. Low side to chassis.	4.5MC (400∿ 30% AM)	Any non-interfering channel	Vert. Amp. thru diode detector to pin 7 (cathode) of picture tube. Low side to chassis.	A48	Adjust for MINIMUM 400∿ indication on scope.

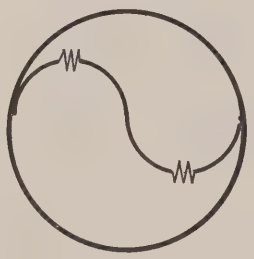
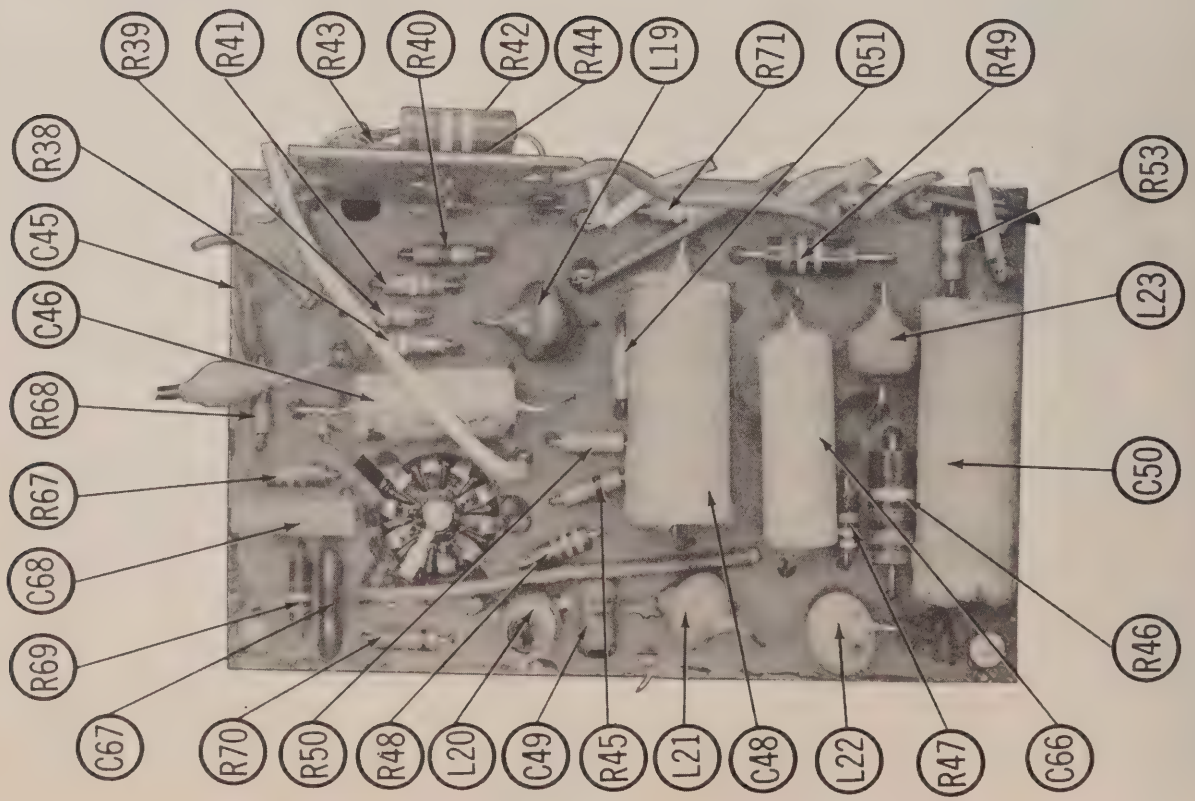
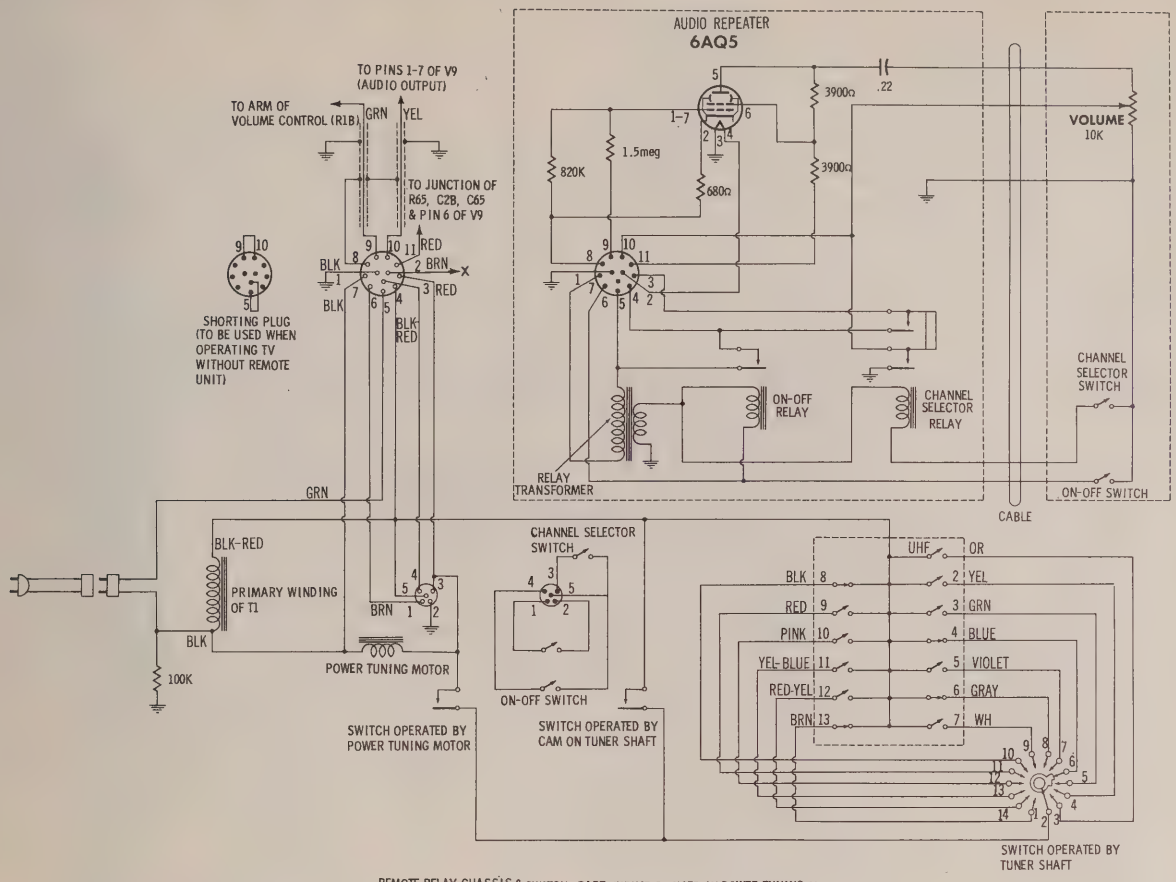


FIG. 10



VIDEO AND SYNC PRINTED BOARD

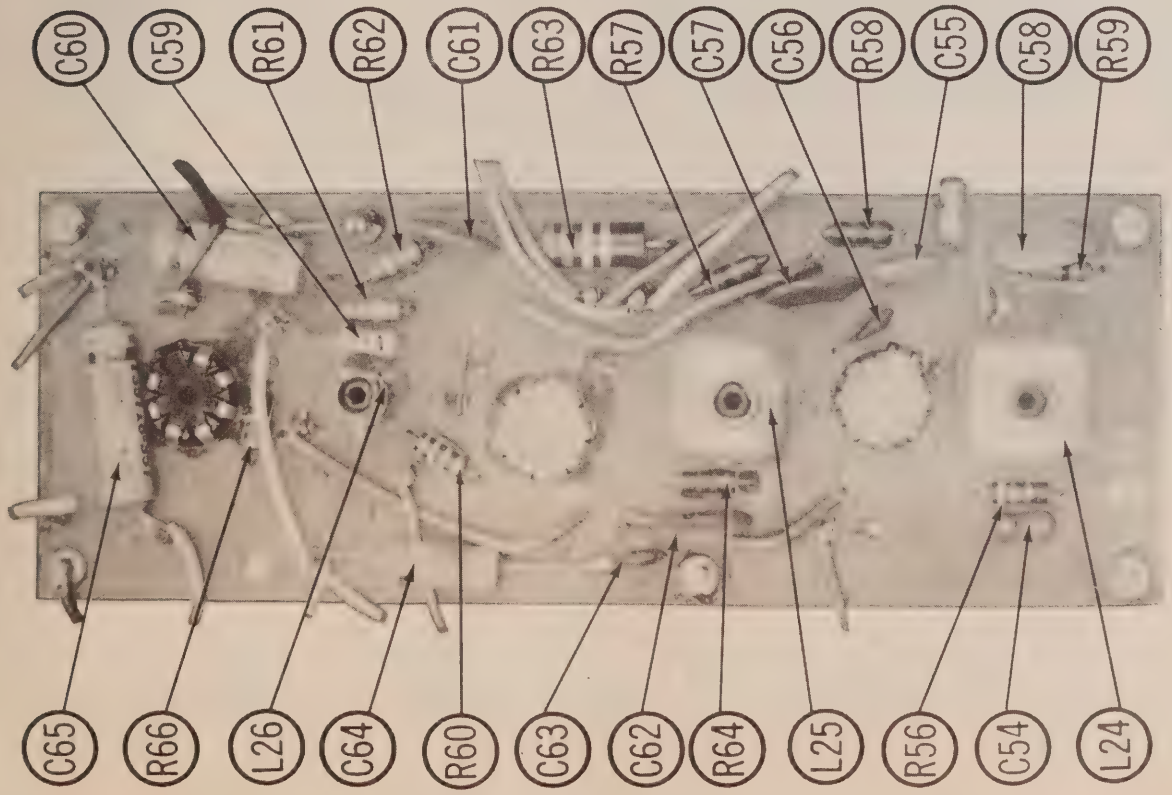


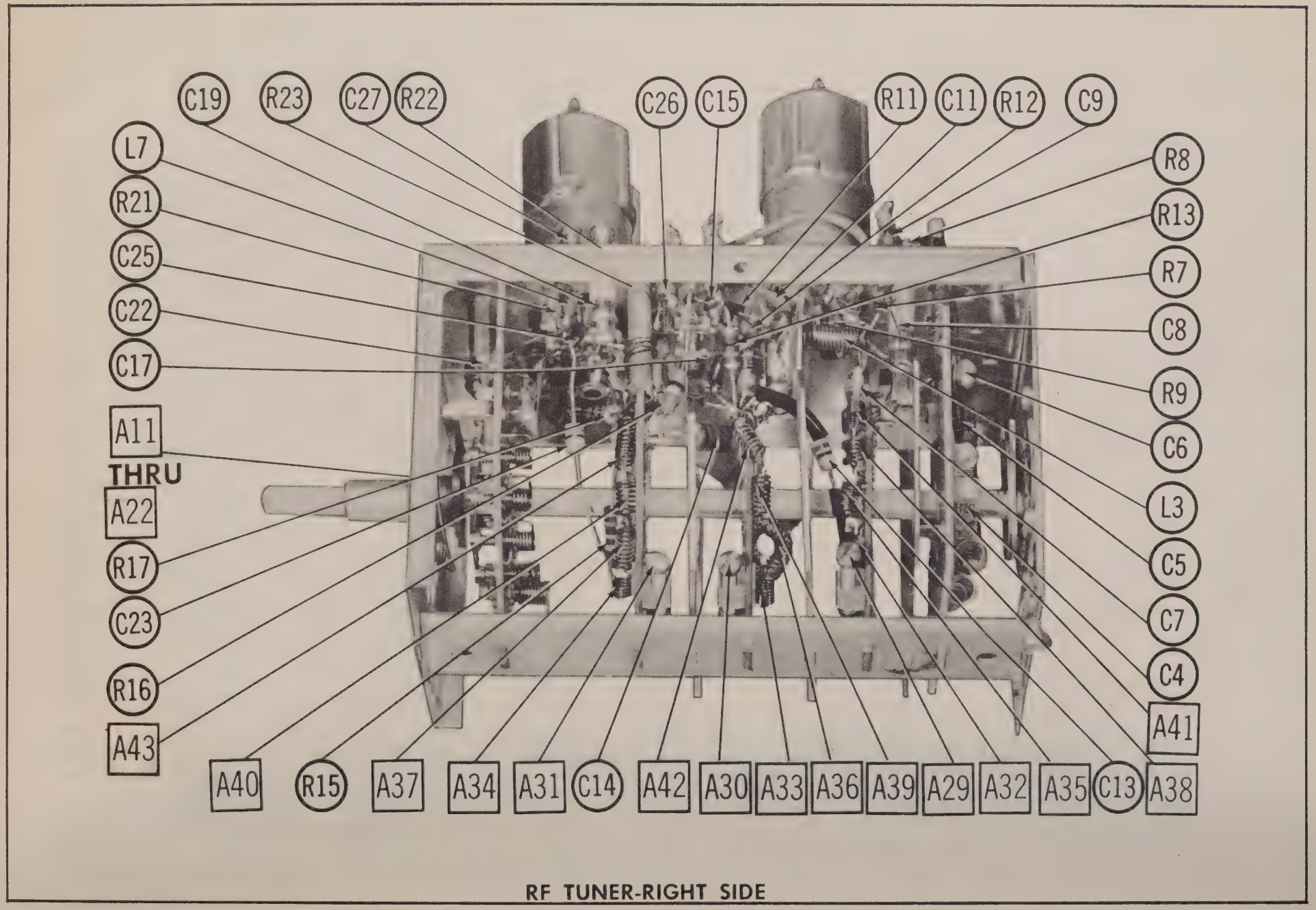
REMOTE RELAY CHASSIS & SWITCH, PART #KRK65-B, USED IN POWER TUNING MODELS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

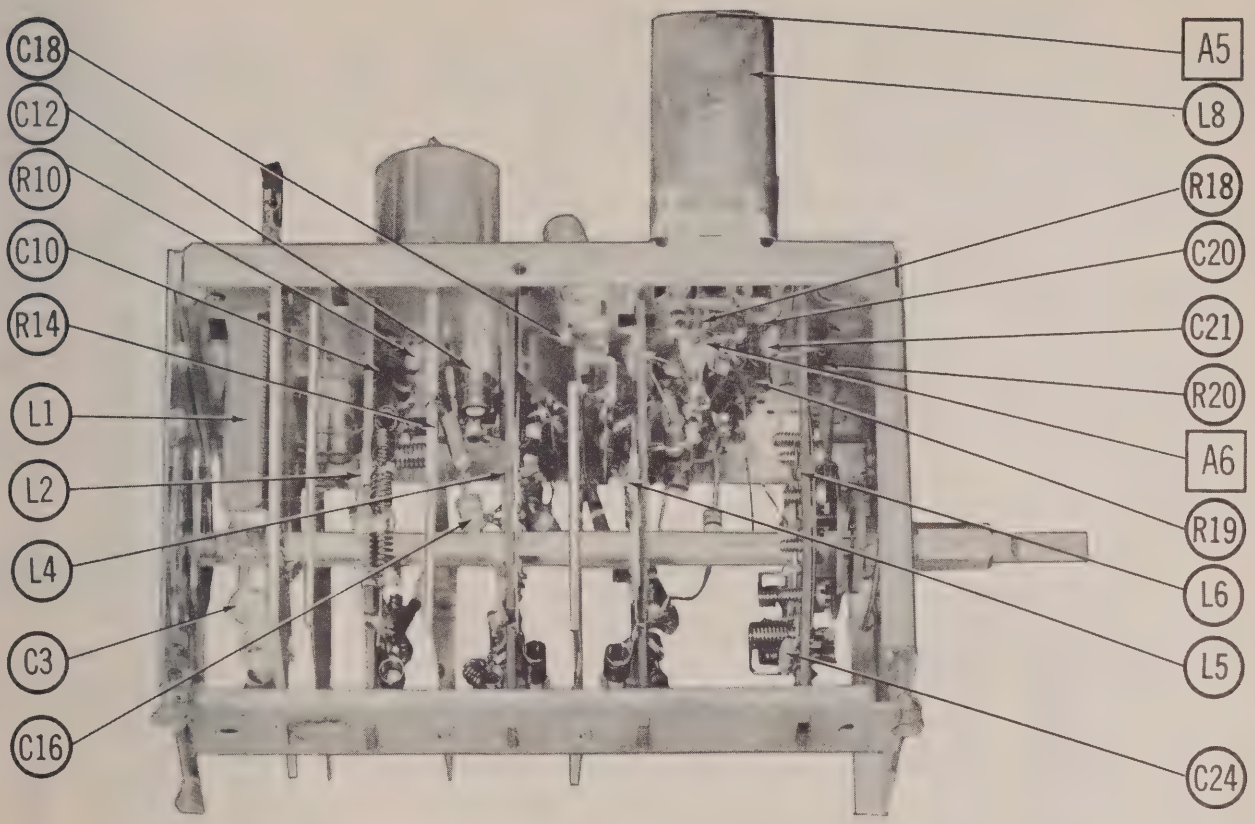
Howard W. Sams & Co., Inc. 1958

REMOTE TUNING SCHEMATIC

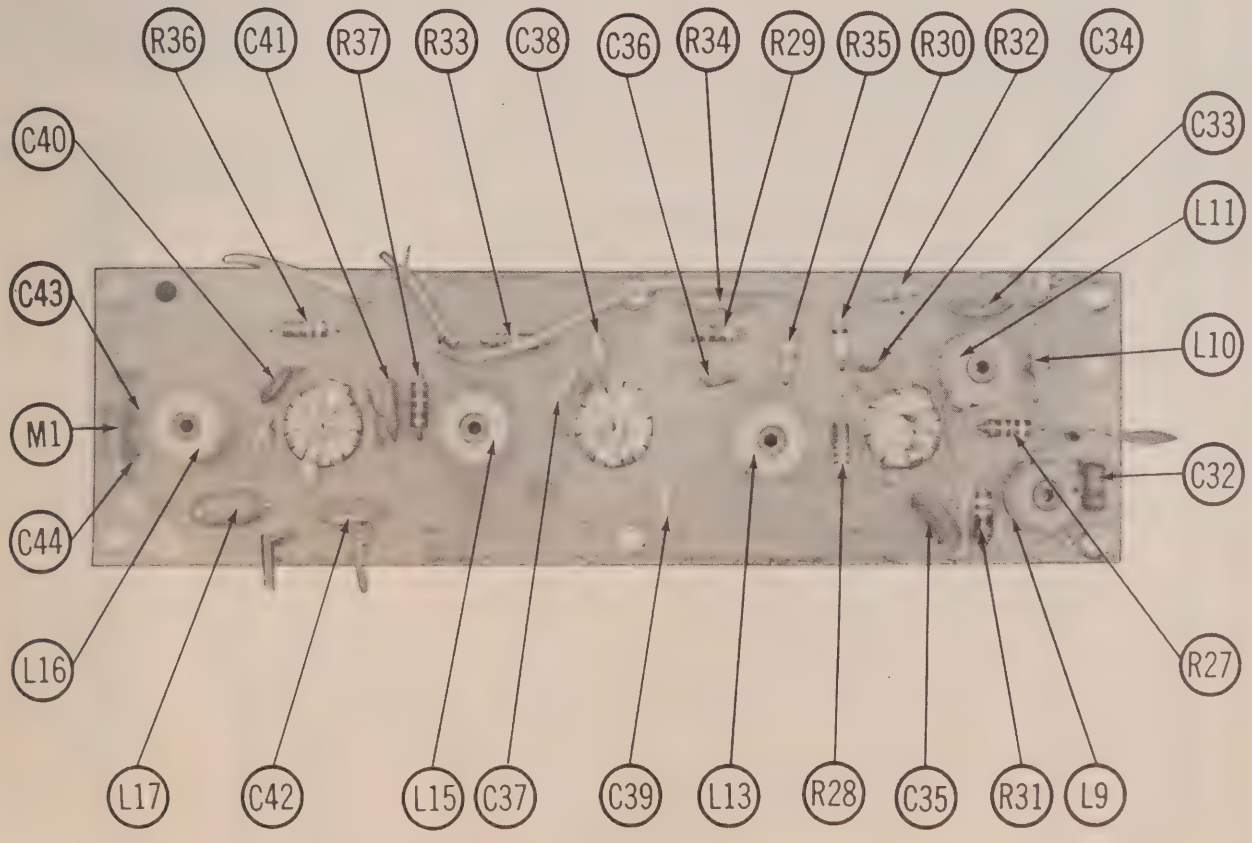




RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



VIDEO IF—PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amp	6BQ7A	
V2	Mixer-Osc	6CM8	
V3	1st Video-IF Amp	6CF6	
V4	2nd Video-IF Amp	6CF6	
V5	3rd Video-IF Amp	6CF6	
V6	Video-Output-Sync Sep	6AW8A	
V7	Sound-IF Amp	6AL6	
V8	Audio-Det	6DT6	

ITEM No	USE	TYPE	NOTES
V9	Audio Output	6DE6	
V10	Sync Amp.-Vert. Mult.	6CG7	
V11	Vert. Mult.-Vert. Output	6CZ5	
V12	Horiz. AFC-Horiz. Osc	6CG7	
V13	Horiz. Output	6JQ8A	
V14	Damper	6AL4GTA	
V15	HV Rectifier	1X2B	
V16	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	RCA Victor PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V17	21CEP4 21AHP4	21CEP4 1	21CYP4	1 Silverama 8	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP	VOLT	RCA Victor PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No	SANGAMO PART No	SPRAGUE PART No.
C1A	4130	400	104091	AFH3-45-45	C0365	FP256	TMQ-8	D-198
B	20	400						
C2A	4100	400	102411	AFH4-103-40	C0805	FP420. 7 TC65	Q-446	*R2345
B	40	400						
C	430	150						
D	40	50						

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	RCA Victor PART No	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	18		102646		TCC-18		TCC-5			NPO 5%
C4	5		104571	NPO-DL5	TCC-5		TCC-5		MS-55	5%
C5	47		100354		TCC-47		TCC-47		MS-447	5%
C8	33		102573	NPO-S1 33	TCC-33	CT4SQ33C	ED-33	ZT-5433	STCC-Q33	10%
C7	220		100672	BPD-00022	DD-221	L10T22	FD-220	UC-5322	SGA-T22	
C8	3-3		103536							
C9	1000		103517	EF-001	MFT-1000				503C-D1	
C10	220		100672		DD-221	L10T22	ED-220		MS-333	10%
C11	220		100672		DS-221	L10T22	ED-220		MS-333	10%
C12	3-2		103534							
C13	10		77890	NPO-S1 1	TCZ-1		TCO-1		STCCB-V1	10%
C14	270		77838	S1 270	DS-271	L76T27	GP-270	UC-5327	SGA-T27	
C15	1000		103517	EF-001	MFT-1000				503C-D1	
C16	68		71504				TCO-68			
C17	82		103560	1464-000082	TCZ-82	22R5Q82	TCO-82		MS-482	5%
C18	140- 400		103519							
C19	3-3		103552							
C20	470		78612		DS-471	5R5T47	ED-470		MS-347	10%
C21	100		103518	EF-0001	MFT-100				503C-T1	
C22	10		103516							N330 10%
C23	10		77890	NPO-S1 1.0	TCZ-1		TCO-1		STCCB-V1	10%
C24	47		103559	NPO-DI 47	DS-470	L10Q47	ED-47	ZT-5447	MS-447	10%
C25	7		103523			C10V7C				
C26	1000		103517	EF-001	MFT-1000				503C-D1	
C27	1000		103517	EF-001	MFT-1000				503C-D1	
C28	10000		73960							
C29	47	200	78148A							
C30	10-150		100849							
C31	4700		73473		BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	SGA-D47	
C32	18		102646			TCC-18		TCO-18			NPO 5%
C33	4700		73473		BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	SGA-D47	
C34	470		78622		BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C35	4700		73473		BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	SGA-D47	
C36	1000		77252		BPD-001	DD-102	BYA5D1	ED-1000	DC541	5HK-D1	
C37	1000		78623		BPD-001	DD-102	BYA5D1	ED-1000	DC541	5HK-D1	
C38	1000		77252		BPD-001	DD-102	BYA5D1	ED-1000	DC541	5HK-D1	
C39	4700		73473		BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	SGA-D47	
C40	1000		78623		BPD-001	DD-102	BYA5D1	ED-1000	DC531	5HK-D1	
C41	4700		73473		BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	SGA-D47	
C42	4700		73473		BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	SGA-D47	
C43	7		104177			C10V7C					NPO
C44	5		104178	NPO-DI 5	TCZ-4R7	C10V5C	TCO-5	ZT-585	STCCB-V5		NPO
C45	10000		73960	BPD-01	DD-103	BYA5S1	ED-01	DC511	5HK-S1		
C46	1	200	78253A	P288N-1	DP-104	CUB4Z1		GEM-401	4TM-P1		
C47	1000		102416	1464-001		1R5D1E	ED-1000	MC5255	MS-S2		10%
C48	47	200	78148A	P288N-47		CUB3P47		GEM-2047	2TM-P47		NPO 5%
C49	27		100352		TCZ-27		TCO-27				
C50	22	600	104148	P688N-22		CUB6P22		GEM-5022	6TM-P22		
C51	47	200	73797	P288N-47		CUB2P47		GEM-2047	2TM-P47		
C52	470		77293	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47		
C53	3		102405		TCN-3.3		TCT-3.3				NT30
C54	56		102407	N750-S1 56	TCN-56	C10Q56U	TCT-56				N750 10%
C55	4700		104131			1R5D47	CY20C472K		MS-S2T		10%
C56	680		73291	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68		
C57	10000		73960	BPD-01	DD-103	BYA5S1	ED-01	DC511	5HK-S1		
C58	10000		73960	BPD-01	DD-103	BYA5S1	ED-01	DC511	5HK-S1		
C59	10		104132								N220 10%
C60	047	200	104133	P288N-047	DF-503	CUB2S47		GEM-4147	4TM-S47		
C61	10000		73960	BPD-01	DD-103	BYA5S1	ED-01	DC511	5HK-S1		
C62	10000		73960	BPD-01	DD-103	BYA5S1	ED-01	DC511	5HK-S1		
C63	580		104088		DS-681	1R5T68	ED-680		MS-386		10%
C64	0022	600	100234					GEM-16223			10% ②
C65	0033	1000	73819								10% ②
C66	047	400	73564								10%
C67	330		102868	1469-00033	D6-331	5R5T33	ED-330		MS-333		10%
C68	330		102868	1469-00033	D6-331	5R5T33	ED-330		MS-333		
C69	033	600	104133	P488N-033	DF-303	CUB4S33		GEM-4133	4TM-S33		10%
C70	0056	600	104808					GEM-16256			
C71	0047	600	73820					GEM-16247			
C72	022	600	104145	P688N-022	DD-223	CUB6S22	ED-22	GEM-6122	6TM-S22		10%
C73	039	400	73790								10%
C74	012	600	79718								10%
C75	15	200	104146								
C76	001	1800	73948	P188N-001	DC80-102	CUB1S0X	ED5-1000	GEM-1621	MS-D1		10%
C77	047	600	78349								

CAPACITORS (cont)

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C78	01	200	79315					GEM-1611		10%
C79	0056	400	73788							10%
C80	047	400	73553		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C81	0047	600	79017		P488N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47
C82	330		104144		1469-00033		1R5T33	ED-330	MS-333	10%
C83	68	1000	78474							5%
C84	68	1000	78475							5%
C85	.1	400	73551		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1
C86	.033	400	103351A		P488N-033	DD-303	CUB4S33	ED-03	GEM-4122	4TM-S22
C87	.47	200	78148A		P288N-47		CUB2P47		GEM-2047	2TM-P47
C88	470	1000	104147							5%
C89	.01	600	73594							5%
C90	680				BPD-00068	DD-681	BYA10T68	ED-681	UC-5368	SGA-T68	②
C91	0082	600	78965							5%
C92	330	1000	78476							10%
C93	10-150		103411							
C94	.1	600	73567		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1
C95	.27	300	73786		P388N-36		CUB3P25		GEM-3025	3TM-P25
C96	270	1000	73679				L27T27			5GA-T27
C97	.1	600	73557							10%
C98	.1	400	73551		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1
C99	.1	400	73551		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1
C100	068	1000	73815		P108N-068		CUB1S6S		GEM-1068	10TM-S68
C101	068	1000	73815		P108N-068		CUB1S6S		GEM-1068	10TM-S68
C102	039	400	73790							10%
C103	470	3000	104179							10%
C104	470	2500	104179							10%
C105	91	2500	103525							10%
C106	100	2500	103526							10%
C107	140	4500	103536							10%
C108	470		77492		BPD-00047	DD-471	BYA10T86	ED-470	UC-5347	SGA-T47

① Chassis KCS113E, F, K, L, M, N, P, R use .1000mfd in this application (Part #140134).
② Chassis KCS113E, F, H, K, M, N, P, R use .0047mfd 1000V 10% in this application (Part #73805).
③ Not used in some versions

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1A	3000Ω	½	104092				U1408B	Not Req.	Contrast - Tap ② 3800Ω ①
B	1meg	½					Not Req.	Not Req.	Volume ①
C	Switch	½					Not Req.	Not Req.	
R2A	5meg	½	104090	AB-87	A47-5meg-S	Q11-141	PTA56L		Horiz. Hold
B	Shaft	½		AK-19	RN-S	TQ	Not Req.		
R3A	250K	½	104088	S-46	A47-300K-S	Q1-138	U43		Brightness
B	Shaft	½		Not Req.	FS-3	Not Req.	Not Req.		
R4A	1.5meg	½	104089	B-742	A47-1.5meg-S	Q1-136	U156		Vert. Hold
B	Shaft	½		Not Req	FS-3	Not Req.	Not Req.		
R5A	5meg	½	100290	AB-87	A47-5meg-S	Q1-141	PTA56L		Height
B	Shaft	½		AK-1	FKB-1/4	TQ	Not Req.		
R6A	1.5meg	½	103408	BX-743	A47-1.5meg-S	B11-136	TA156L		Vert. Lin.
B	Shaft	½		Not Req.	FKB-1/4	TM3-Kit	Not Req.		

① All chassis except KCS113A, B use a 3000Ω tapped contrast control and a 1meg tapped volume control and switch. Chassis KCS113E, F, M, N, P, R use Part #104134. Chassis KCS113E use Part #104922, and Chassis KCS113K use Part #104823.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R7	10K		502310	
R8	1meg		502510	
R9	100K		502410	
R10	33K		502347	
R11	1meg		502510	
R12	470K		502447	Note 1
R13	1000Ω		502210	
R14	470Ω		502147	
R15	3300Ω		502233	
R16	100K		502410	
R17	100K		502410	
R18	27 5%		502327	
R19	1000Ω		502210	
R20	3300Ω		502336	
R21	5600Ω		502368	
R22	100Ω		502110	
R23	330Ω		502133	
R24	270Ω		502127	
R25	330Ω		502133	
R26	1000Ω		502210	
R27	47K 5%		502347	
R28	47K 5%		502347	
R29	680Ω		502268	
R30	100Ω		502410	
R31	470 5%		502047	
R32	150K 5%		502415	
R33	680Ω		502168	
R34	15K		502315	
R35	150K 5%		502415	
R36	47K		502347	
R37	1800 5%		502218	
R38	3900Ω 5%		502339	
R39	220K		502422	
R40	1.5meg		502512	
R41	680K		502468	
R42	82K		502382	
R43	820K		502482	
R44	68K	2	502368	
R45	1meg		502510	
R46	6800Ω	2	502368	
R47	27K		502327	
R48	330Ω		502133	
R49	56K	1	502356	
R50	2200Ω		502222	
R51	33K		502333	
R52	3300Ω		502233	
R53	150K		502415	
R54	22K		502322	

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R55	820K		502482	
R56	47K		502347	
R57	1000Ω		502210	
R58	1000Ω		502210	
R59	82Ω		502082	
R60	390K		502439	
R61	180K		502418	Note 2
R62	470K		502447	
R63	18K	2	502318	
R64	560Ω		502256	
R65	18000	4	104854	Note 3
R66	270Ω		502127	
R67	270Ω		502427	
R68	2.2meg		502522	
R69	560K		502456	
R70	10meg		502810	
R71	390K		502439	
R72	33K		502333	
R73	560K		502456	
R74	10K	1	513210	
R75	82K		502382	
R76	3300Ω		502333	
R77	1.2meg		502512	
R78	18K		502318	
R79	6.8meg		502568	
R80	820K		502482	
R81	220K		502422	
R82	470K		502447	
R83	22K		502322	
R84	3900Ω		502239	
R85	470K		502447	
R86	680K		502468	
R87	2200	1	513122	
R88	18K	1	512318	
R89	6300Ω		502263	
R90	18K		502318	
R91	1500	1	512115	
R92	3300Ω		502233	
R93	150Ω		502115	
R94	180Ω		502118	
R95	3.3Ω			
R96	330K		502433	
R97	820K		502482	
R98	220K		502422	
R99	82K 5%		502382	
R100	100K 5%		502410	
R101	3900Ω		502239	
R102	120K 5%	1	512413	

RESISTORS (cont)

ITEM No	RATING		RCA Victor PART No	NOTES
	OHMS	WATT		
R103	1meg		502510	
R104	68K		502368	
R105	47K	1	512347	
R106	0 39Ω		502047	
R107	1meg		502510	
R108	10meg		502610	
R109	10meg		502810	
R110	47000	3	104355	
R111	100Ω	7	104188	

ITEM No	RATING		RCA Victor PART No	NOTES
	OHMS	WATT		
R112	68K		502368	
R113	100K		502410	
R114	4700Ω		502247	
R115	0 39Ω		104181	
R116	1000Ω		502310	
R117	4700Ω	7	104187	
R118	100K		502410	Note 4
R119	7 5Ω		104295	

Note 1. Some versions may use 3900Ω in this application (Part #502239).
Note 2. Ch. KCS113M, N use 130K in this application (Part #502412).
Note 3. Ch. KCS113E, K use 15000Ω 4W in this application (Part #104926).
Note 4. Ch. KCS113M, N use 820K in this application (Part #502682).

TRANSFORMER (POWER)

ITEM No	RATING	REPLACEMENT DATA					
		RCA Victor PART No	Halldorson PART No	Merit PART No.	Ram PART No	Stancor PART No	Thordorson PART No	Triad PART No
T1	PRI 117V @ 1 6A	SEC 1 540VCT @ 270A	SEC 2 5V @ 3A	104139 ①					
	SEC 3 6 3V @ 8 5A	SEC 4	SEC 5						

① Used in Ch. KCS113A, B, E, F, M, N, P, R. Ch. KCS113H, K use Part #104921.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							NOTES
		RCA Victor PART No	Halldorson PART No	Merit PART No.	Ram PART No	Stancor PART No.	Thordorson PART No	Triad PART No	
T2	Vert. Output	104085						A-115X	
T3A	Yoke-Horiz. (18.6MH)	104078 ①		MDF-117		DY-26A ②		Y-60-2	
B	(110°)-Vert. (1.8MH)								
M3	Rear Cover &	104077							
	Centering Device	51209							
	Yoke Plug	104409							
	Yoke Clamp	104236		HVO-179		HO-386 *			
T4	Horiz. Output	KWC-9	20LR15	KWC-9		WC-2	WC-32	WLC-6	
T5	Width Coil(5-11MH)	104084							

① Includes R33, R34, R95, C105, C106, C107 and yoke plug.
② Use original rear cover and centering device.

***HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA**

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
5				5		
4				4		
3				3		
2				2		
1				1		
Connect Width Coil Across	2 & 1			2 & 1		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		RCA Victor PART No.	REPLACEMENT DATA					NOTES
	PRI.	SEC.		Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T6	7500Ω 7600Ω	3-4Ω 3-4Ω	104183 ① 100937 ②	22113 21003	A-2931 A-3020	AU-502	A-3878 A-3849	24852 24848	S-7X S-9Z	① Used in Ch. KCS113A, B, H ② Used in Ch. KCS113, E, F, K, M, N, P, R

SPEAKER

ITEM No.	TYPE				REPLACEMENT DATA		NOTES
	SIZE	FIELD	V C	IMP	RCA Victor PART No.	GUAM PART No.	
SP1	4"	PM		3-4Ω	79696 ①	4A07	① Used in Models 21TR3302, 21TR303, U, 21TR305, U, 21TR307, U
	5"	PM		3-4Ω	77000 ②	5A07	② Used in Models 21TR285, U, 21TR287, U
	8"	PM		3-4Ω	74864 ③	8A1	③ Used in Models 21RT9435, 21TR375, U, 21TR376, U, 21TR377, U, 21TR395, U, 21TR397, U, 21TR405, U, 21TR407, U, 21TR415, U, 21TR416, U, 21TR427, U, 21TR428, U, 21TR445, U, 21TR447, U, 21TR448, U, 21TR465, U, 21TR466, U, 21T-8487, U, 24TR335, U, 24TR347, U, 24TR355, U, 24TR337, U
	8" x 9"	PM		3-4Ω	101183 ④	9A3	④ Used in Models 21TR465, U, 21TR466, U, 21TR467, U, 21TR468, U

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L1	Ant. Matching Trans. Assy.	103525	Includes coils and caps. Channel 2-13, Includes stator assy. and C7, and C13
L2	Ant. Coils	103584	
L3	Neut. Coil	78563	Channel 2-13 Includes stator assy., C16, C17, R13 and R14
L4	RF Coils	103582	

ITEM No.	USE	RCA Victor PART No.	NOTES
L5	Mixer Grid Coils	103583	Channel 2-13, Includes stator assy., C14, R15, R16 and R17
L6	Osc. Coils	103581	Channel 2-13 Includes stator assy., C23, C24
L7	RF Choke	103534	
L8	Mixer Plate Coil	103516	

RCA VICTOR CHASSIS KCS113A, B, E, F, H, K, M, N, P, R

FOLDER 3

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA					
		RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L9	47.25MC Trap	104141					Printed Board #933152
	47.25MC Trap	102650					Printed Board #933482
L10	RF Choke	102894					
L11	1st. Video IF	104140					Printed Board #933152
	1st. Video IF	102649					Printed Board #933482
L12	Fil. Choke						
L13	2nd. Video IF	104139					Printed Board #933152
	2nd. Video IF	101388					Printed Board #933482
L14	Fil. Choke						
L15	3rd. Video IF	104139					Printed Board #933152
	3rd. Video IF	101588					Printed Board #933482
L16	4th. Video IF	104139					Printed Board #933152
	4th. Video IF	101588					Printed Board #933482
L17	Series Peaking Coil	102639	19-1006	TV-192	6152		18 Microhenries
L18	Series Peaking Coil	102639	19-1006	TV-192	6152		18 Microhenries
L19	Shunt Peaking Coil	100360	19-3300	TV-199	6155		300 Microhenries
L20	4.5MC Trap	100358					
L21	Series Peaking Coil	100361	19-3300 *	TV-199 *	6155 *		300 Microhenries, wound on 6800Ω resistor
L22	Shunt Peaking Coil	100362	19-3500	TV-203	6174	VP-8	510 Microhenries
L23	Shunt Peaking Coil	100363	19-3500 ▲	TV-203 ▲	6174 ▲	VP-8 ▲	510 Microhenries, wound on 1800Ω resistor
L24	1st. Sound IF	104136					
L25	2nd. Sound IF	104137					Includes cap.
L26	Quadrature Coil	104138					
L27	RF Choke	76640	19-1001	BC-562	4604		1.5 Microhenries, IRC part #CL-1

* Parallel with 6800Ω resistor.
▲ Parallel with 1800Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L28	71Ω *		104087					HS-7	Horiz. Freq. 64 Millihenries * Tapped @ 50Ω
L29	38Ω		100300						Horiz. Waveform

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L30	.270A	47Ω	1.1 Hy.	102638	C5037 ①	C-2991 ①		C-2326 ①	26C44 ①	C-24X

① Drill new mounting hole.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	
M1	1N60	79985 *	1N60	1N60	Video Detector (Pigtail) * Alternate part #105517.

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M2	Tuner	KRK62A	VHF (KRK46C Part #104563) Complete Assy. Ch. KCS113A
	Tuner	KRK62E	VHF (KRK46C Part #104563) Complete Assy. Ch. KCS113E
	Tuner	KRK62W	VHF (KRK46C Part #104563) Complete Assy. Ch. KCS113M
	Tuner	KRK62T	VHF (KRK46C Part #104563) Complete Assy. Ch. KCS113P
	Tuner	KRK62C	VHF (KRK46F Part #105075) Complete Assy. Ch. KCS113H
	Tuner	KRK62H	VHF (KRK46F Part #105075) Complete Assy. Ch. KCS113K
	Tuner	KRK62B	UHF-VHF Includes VHF (KRK47C Part #104558), UHF (KRK64A Part # 104591), Ch. KCS113B
	Tuner	KRK62F	UHF-VHF Includes VHF(KRK47C Part #104558), UHF (KRK64A Part #104591), Ch. KCS113F
	Tuner	KRK62AA	UHF-VHF Includes VHF (KRK47C Part #104558), UHF (KRK64A Part #104591), Ch. KCS113N
	Tuner	KRK62U	UHF-VHF Includes VHF (KRK47C Part #104558), UHF (KRK64A Part #104591), Ch. KCS113R
M3	Centering Device	104077	Includes yoke rear cover
	Printed Board	104106	Sound (Less Tubes) Ch. KCS113A, B, H
	Printed Board	104518	Sound (Less Tubes) Ch. KCS113E, F, K, M, N, P, R
	Printed Board	104107	Video IF (Less Tubes)
	Printed Board	104108	Video, Sync (Less Tubes)
	Printed Board	103529	Sync, Vert. (Less Tubes)
	Printed Board	104110	Horiz. (Less Tubes)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	104079	Models 21RT8202, 21T8202, U, 21T8205, U, 21T8207, U, 21T8265, U, 21T8267, U 21T8375, U, 21T8376, U, 21T8377, U, 21T8395, U, 21T8397, U, 21T8405, U, 21T8407, U
Safety Glass	104252	Models 21RT8425, 21T8425, U, 21T8426, U, 21T8427, U, 21T8428, U, 21T8445, U, 21T8447, U, 21T8448, U, 21T8465, U, 21T8466, U, 21T8467, U, 21T8468, U, 21T8485, U, 21T8486, U, 21T8487, U
Safety Glass	105495	24" Models
Mask	104235	Models 21RT8202, 21T8202, U, 21T8205, U, 21T8207, U, 21T8265, U, 21T8267, U 21T8375, U, 21T8376, U, 21T8377, U, 21T8395, U, 21T8397, U, 21T8405, U, 21T8407, U
Mask	104247	Models 21RT8425, 21T8425, U, 21T8426, U, 21T8427, U, 21T8428, U, 21T8445, U, 21T8447, U, 21T8448, U, 21T8465, U, 21T8466, U, 21T8467, U, 21T8468, U, 21T8485, U, 21T8486, U, 21T8487, U
Mask	105494	24" Models

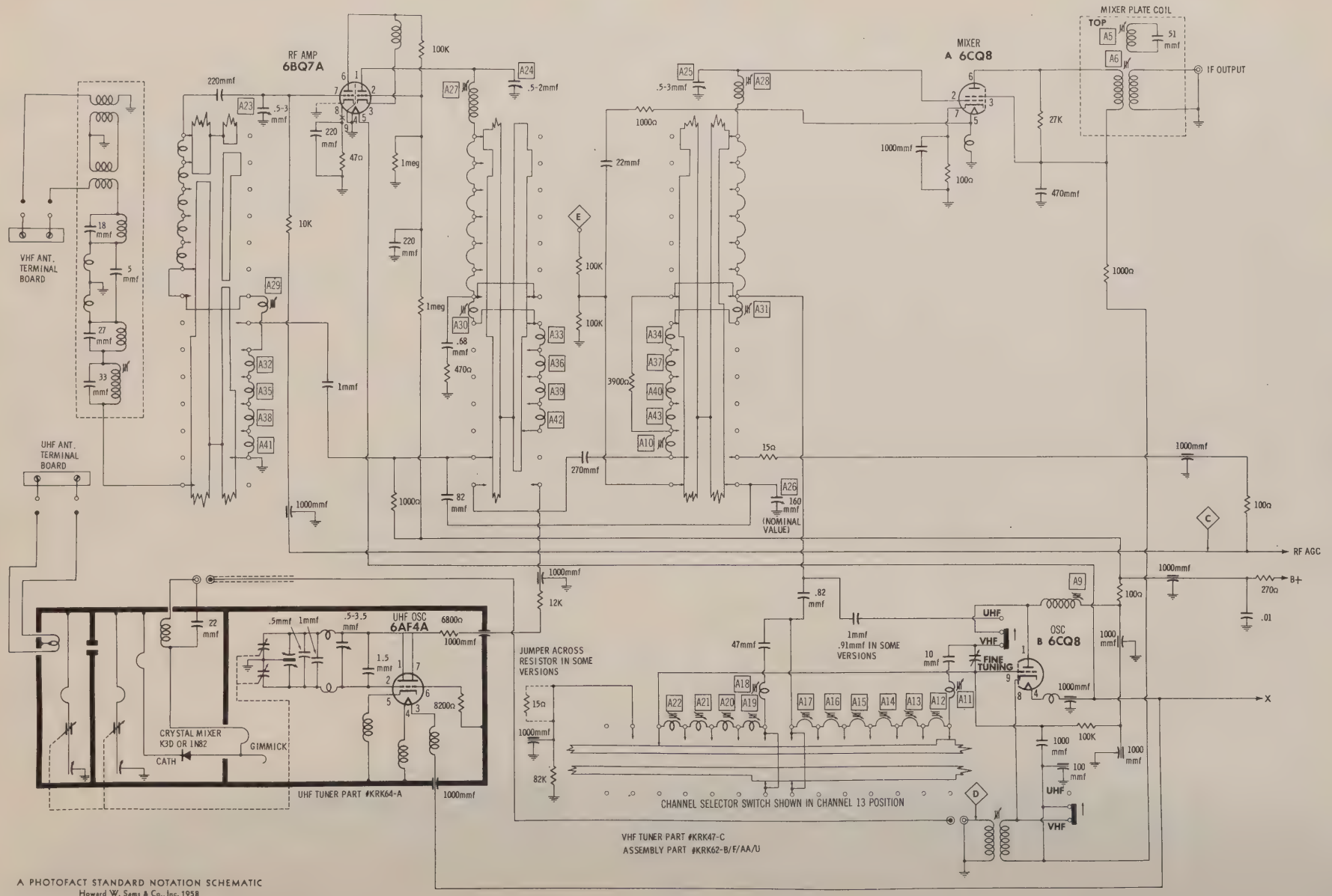
PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS (cont)

NAME	PART NO.	DESCRIPTION
Knob	104069	VHF Channel Selector - Models 21RT8202, 21T8202
Knob	104304	VHF Channel Selector - Models 21RT8425, 21T8205, 21T8265, 21T8375, 21T8395, 21T8405, 21T8425, 21T8445, 21T8465, 21T8485, 24T8325, 24T8335
Knob	104303	VHF Channel Selector - Models 21T8207, 21T8267, 21T8376, 21T8377, 21T8397, 21T8407, 21T8426, 21T8427, 21T8447, 21T8466, 21T8467, 21T8486, 21T8487, 24T8327, 24T8337
Knob	104597	VHF Channel Selector - Models 21T8428, 21T8448, 21T8468
Knob	104070	UHF-VHF Channel Selector - Model 21T8202U
Knob	104305	UHF-VHF Channel Selector - Models 21T8205U, 21T8265U, 21T8375U, 21T8395U, 21T8405U, 21T8425U, 21T8445U, 21T8465U, 21T8485U, 24T8325U, 24T8335U
Knob	104306	UHF-VHF Channel Selector - Models 21T8207U, 21T8267U, 21T8376U, 21T8377U, 21T8397U, 21T8407U, 21T8426U, 21T8427U, 21T8447U, 21T8466U, 21T8467U, 21T8486U, 21T8487U, 24T8327U, 24T8337U
Knob	104596	UHF-VHF Channel Selector - Models 21T8428U, 21T8448U, 21T8468U
Knob	104401	UHF-VHF Fine Tuning - Models 21RT8202, 21T8202, U
Knob	104397	UHF-VHF Fine Tuning - Models 21RT8425, 21T8205, 21T8265, U, 21T8375, U 21T8395, U, 21T8405, U, 21T8425, U, 21T8445, U, 21T8465, U, 21T8485, U, 24T8325, U, 24T8335, U
Knob	104398	UHF-VHF Fine Tuning - Models 21T8207, U, 21T8267, U, 21T8367, U, 21T8377, U, 21T8397, U, 21T8407, U, 21T8426, U, 21T8427, U, 21T8447, U, 21T8466, U, 21T8467, U, 21T8486, U, 21T8487, U, 24T8327, U, 24T8337, U
Knob	104399	UHF-VHF Fine Tuning - 21T8428, U, 21T8448, U, 21T8468, U
Knob	104073	UHF Tuning - Models 21T8202U
Knob	104071	UHF Tuning - Models 21T8205U, 21T8265U, 21T8375U, 21T8395U, 21T8405U, 21T8425U, 21T8445U, 21T8465U, 21T8485U, 24T8325, 24T8335U
Knob	104072	UHF Tuning - Models 21T8207U, 21T8267U, 21T8376U, 21T8377U, 21T8397U, 21T8407U, 21T8426U, 21T8427U, 21T8447U, 21T8466U, 21T8467U, 21T8486U, 21T8487U, 24T8327U, 24T8337U
Knob	104405	UHF Tuning - Models 21T8428U, 21T8448U, 21T8468U
Knob	104076	UHF Dial - Model 21T8202U, Tuner KRK64A
Knob	104522	UHF Dial - Model 21T8202U, Tuner KRK64A-M1
Knob	104074	UHF Dial - Models 21T8205U, 21T8265U, 21T8375U, 21T8395U, 21T8405U, 21T8425U, 21T8465U - Tuner KRK64A
Knob	104520	UHF Dial - Models 21T8205U, 21T8265U, 21T8375U, 21T8395U, 21T8405U, 21T8425U, 21T8445U, 21T8465U, 21T8485U, 24T8325U, 24T8335U-Tuner KRK64A-M1
Knob	104075	UHF Dial - Models 21T8207U, 21T8267U, 21T8376U, 21T8377U, 21T8397U, 21T8407U, 21T8426U, 21T8427U, 21T8428U, 21T8447U, 21T8448U, 21T8466U, 21T8467U, 21T8468U, 21T8486U, 21T8487U - Tuner KRK64A
Knob	104521	UHF Dial - Models 21T8207U, 21T8267U, 21T8376U, 21T8377U, 21T8397U, 21T8407U, 21T8426U, 21T8427U, 21T8428U, 21T8447U, 21T8448U, 21T8466U, 21T8467U, 21T8468U, 21T8486U, 21T8487U, 24T8327U, 24T8337U-Tuner KRK64A-M1
Knob	100620B	On-Off-Volume - Models 21RT8202, 21T8202, U
Knob	101138B	On-Off-Volume - Models 21RT8425, 21T8205, U, 21T8265, U, 21T8375, U, 21T8395, U, 21T8405, U, 21T8425, U, 21T8445, U, 21T8465, U, 21T8485, U, 24T8325, U, 24T8335, U
Knob	100621B	On-Off-Volume - Models 21T8207, U, 21T8267, U, 21T8376, U, 21T8377, U, 21T8397, U, 21T8407, U, 21T8426, U, 21T8427, U, 21T8447, U, 21T8466, U, 21T8467, U, 21T8486, U, 21T8487, U, 24T8327, U, 24T8337, U
Knob	101140B	On-Off-Volume - Models 21T8428, U, 21T8448, U, 21T8468, U
Knob	104400	Contrast - Models 21RT8202, 21T8202, U
Knob	104386	Contrast - Models 21RT8425, 21T8205, U, 21T8265, U, 21T8375, U, 21T8395, U, 21T8405, U, 21T8425, U, 21T8445, U, 21T8465, U, 21T8485, U, 24T8325, U, 24T8335, U
Knob	104395	Contrast - Models 21T8207, U, 21T8267, U, 21T8376, U, 21T8377, U, 21T8397, U, 21T8407, U, 21T8426, U, 21T8427, U, 21T8447, U, 21T8466, U, 21T8467, U, 21T8486, U, 21T8487, U, 24T8327, U, 24T8337, U
Knob	104396	Contrast - Models 21T8428, U, 21T8448, U, 21T8468, U
Knob	102581	Brightness , Vert. Hold, Tone
Cabinet	Z4129	Models 21RT8202, 21T8202, U
Cabinet	Z4130	Models 21T8205, U, 21T8265, U
Cabinet	Z4131	Models 21T8207, U, 21T8267, U
Cabinet	M4202	Models 21T8375, U
Cabinet	M4213	Models 21T8376, U
Cabinet	M4203	Models 21T8377, U
Cabinet	M4204	Models 21T8395, U
Cabinet	M4205	Models 21T8397, U
Cabinet	M4206	Models 21T8405, U
Cabinet	M4207	Models 21T8407, U
Cabinet	M4147	Models 21RT8425, 21T8425, U
Cabinet	M4148	Models 21T8426, U
Cabinet	M4149	Models 21T8427, U
Cabinet	M4201	Models 21T8428, U
Cabinet	M4208	Models 21T8445, U
Cabinet	M4209	Models 21T8447, U
Cabinet	M4210	Models 21T8448, U
Cabinet	M4152	Models 21T8465, U
Cabinet	M4153	Models 21T8466, U
Cabinet	M4154	Models 21T8467, U
Cabinet	M4214	Models 21T8468, U
Cabinet	M4150	Models 21T8485, U
Cabinet	M4212	Models 21T8486, U
Cabinet	M4151	Models 21T8487, U
Leg	Z3695	Models 21T8265, U, 21T8267, U
Leg	Z3886	Models 21T8445, U, 21T8447, U, 21T8448, U
Leg	X3838	Models 21T8465, U
Leg	X3839	Models 21T8466, U
Leg	X3840	Models 21T8467, U
Leg	X3841	Models 21T8468, U

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

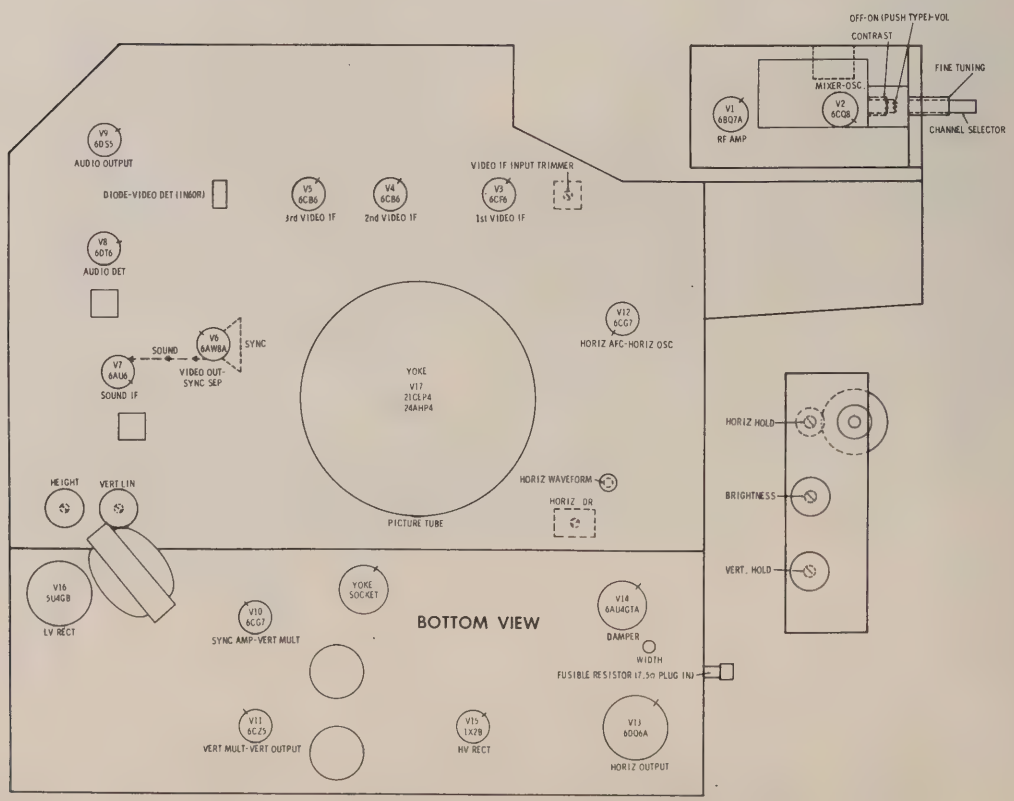
ALTERNATE UHF-VHF TUNER SCHEMATIC

CHASSIS-BOTTOM VIEW

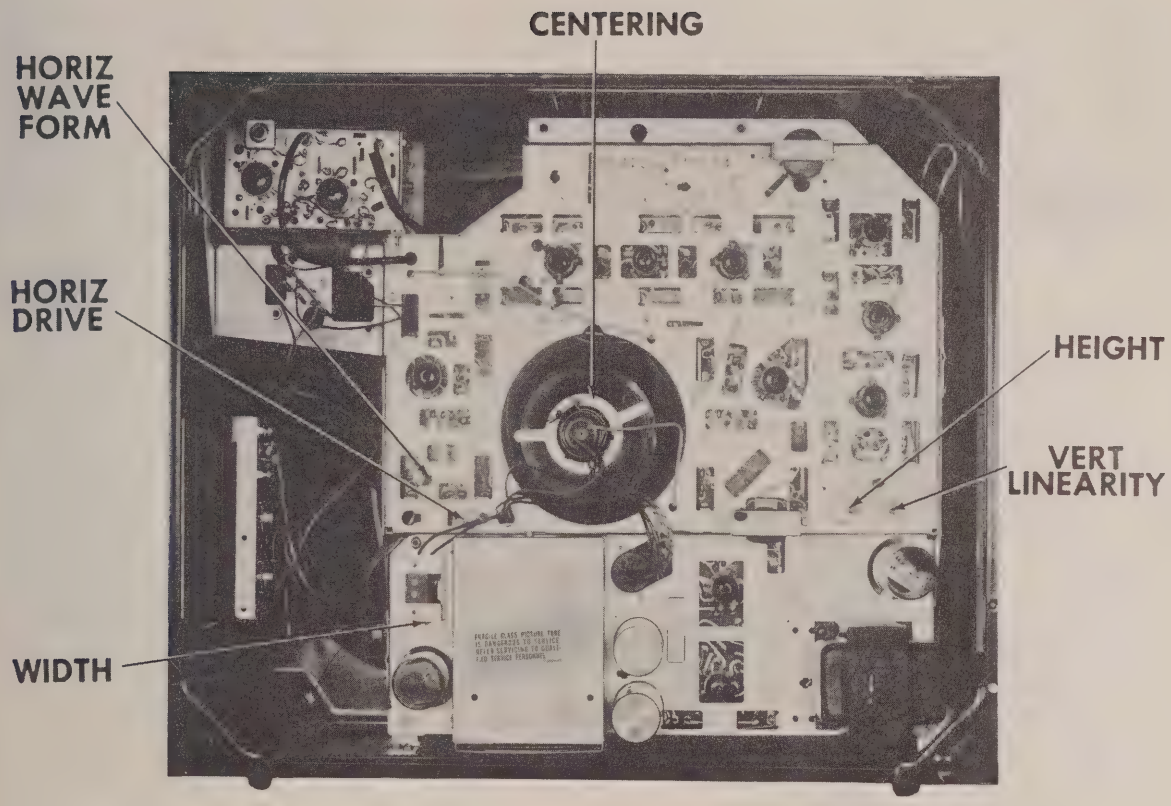
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	† 1300Ω	500K	600K	0Ω	.1Ω	600K	1.2meg	47Ω	0Ω
V2	6CQ8	† 370Ω	100K	INF	.1Ω	0Ω	INF	0Ω	INF	INF
V3	6CF6	420K	47Ω	0Ω	.1Ω	▲ 680Ω	▲ 680Ω	0Ω		
V4	6CB6	▲ 15K	80K	0Ω	.1Ω	† 680Ω	† 680Ω	80K		
V5	6CB6	.1Ω	180Ω	.1Ω	0Ω	† 5200Ω	† 5200Ω	0Ω		
V6	6AW8A	0Ω	2meg	390K	.1Ω	0Ω	● 320Ω	1meg	† 56K	† 6800Ω
V7	6AU6	47K	0Ω	0Ω	.1Ω	† 5700Ω	† 19K	82Ω		
V8	6DT6	3.9Ω	560Ω	.1Ω	0Ω	‡ 550K	† 18K	470K		
V9	6DS5	0Ω	270Ω	.1Ω	0Ω	† 2100Ω	† 1800Ω	0Ω		
V10	6CG7	† 18K	33K	0Ω	0Ω	.1Ω	● ‡ 1.4meg	● 1.8meg	0Ω	0Ω
V11	6CZ5	† 150Ω	NC	● 1.5meg	0Ω	.1Ω	● 1.5meg	0Ω	NC	† 700Ω
V12	6CG7	† 0Ω	1.2meg	180K	0Ω	.1Ω	† 47K	180K	0Ω	0Ω
V13	6DQ6A	NC	0Ω	NC	† 4700Ω	1meg	TP	.1Ω	100Ω	TOP CAP ‡ 16Ω
V14	6AU4GTA	NC	NC	¶	NC	† .5Ω	NC	0Ω	.1Ω	
V15	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡ 351Ω
V16	5U4GB	NC	¶	NC	33Ω	NC	35Ω	NC	¶	
V17	21CEP4	0Ω	22K	1.1meg	† 0Ω	NC	NC	● 170K	.1Ω	

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 255V SOURCE.
‡ MEASURED FROM PIN 3 OF V14.
▲ MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the Horizontal Hold (R2) clockwise until the picture falls out of sync. Slowly turn the control counter clockwise and note the number of diagonal bars present just before the picture synchronizes. The picture should pull into sync with $1\frac{1}{2}$ to 3 bars present.

Set the Width slug (B2) fully counter clockwise. With the Horizontal Hold set at the pull-in point, adjust the Horizontal Drive (B1) counter clockwise until a bright white vertical line appears in the center of the raster, then turn clockwise until the line just disappears. If no line appears, leave fully counter clockwise.

Set the Brightness for normal brightness and adjust the Width slug (B2) for an overscan of 3/4 inch on each side of screen with the line voltage at 117 volts. Readjust the Horizontal Drive as above.

The picture should pull into sync with $1\frac{1}{2}$ to 3 bars present and remain in sync for approximately one-quarter turn, then fall out of sync with 2 to 5 bars present before interrupted oscillation (motorboating) occurs.

Place a clip lead across the Horizontal Waveform coil (L29) and adjust the Horizontal Hold until the picture synchronizes horizontally. Remove the clip lead.

Connect the vertical amplifieir of the scope thru a low capacity probe to point (F). Low side to chassis. Turn the Horizontal Hold clockwise until the picture falls out of sync, then counter clockwise until the picture just pulls into sync. The pattern on the scope should be similar to Fig. 11. Adjust Waveform slug (B3) until the round and sharp peaks are the same amplitude. During this alignment, the picture must be kept in sync with the Horizontal Hold if necessary. Remove scope connection.

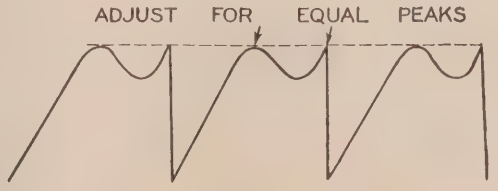
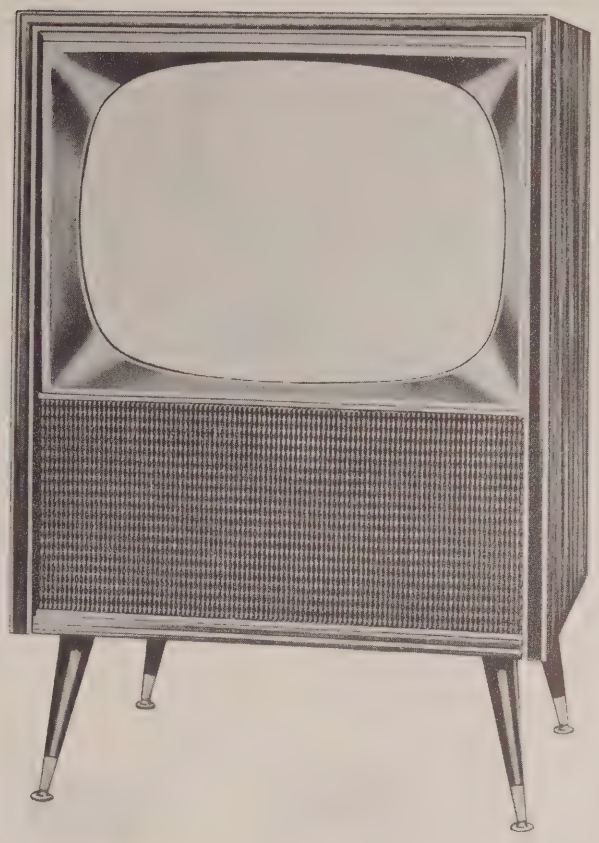


FIG. 11

FOLDER 3

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)

U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type knobs from the top.
2. Remove 6 wood screws from the rear cover. Remove the rear cover.
3. Remove 2 wood screws holding the metal braces to the cabinet.
4. Remove the speaker leads.
5. Remove 6 bolts holding the chassis mounting board.
6. Remove the mounting board and chassis.

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)

TRADE NAME	Spartan	CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, U24-06AA V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)
MANUFACTURER	Spartan Div., 2131 Bueter Road, Fort Wayne 4, Indiana	
TYPE SET	Television Receiver	
TUBES	Eighteen	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 180 Watts, 1.6 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the rear cover and suppling power to the set. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated through a hole in the tuner rear cover.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the 4 wood screws holding the trim strip at the top of the safety glass. Tilt the glass out at the top and lift up to remove.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. NOTE: Some versions may use an ion trap. If so equipped readjust ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator , it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location,see tube placement chart).

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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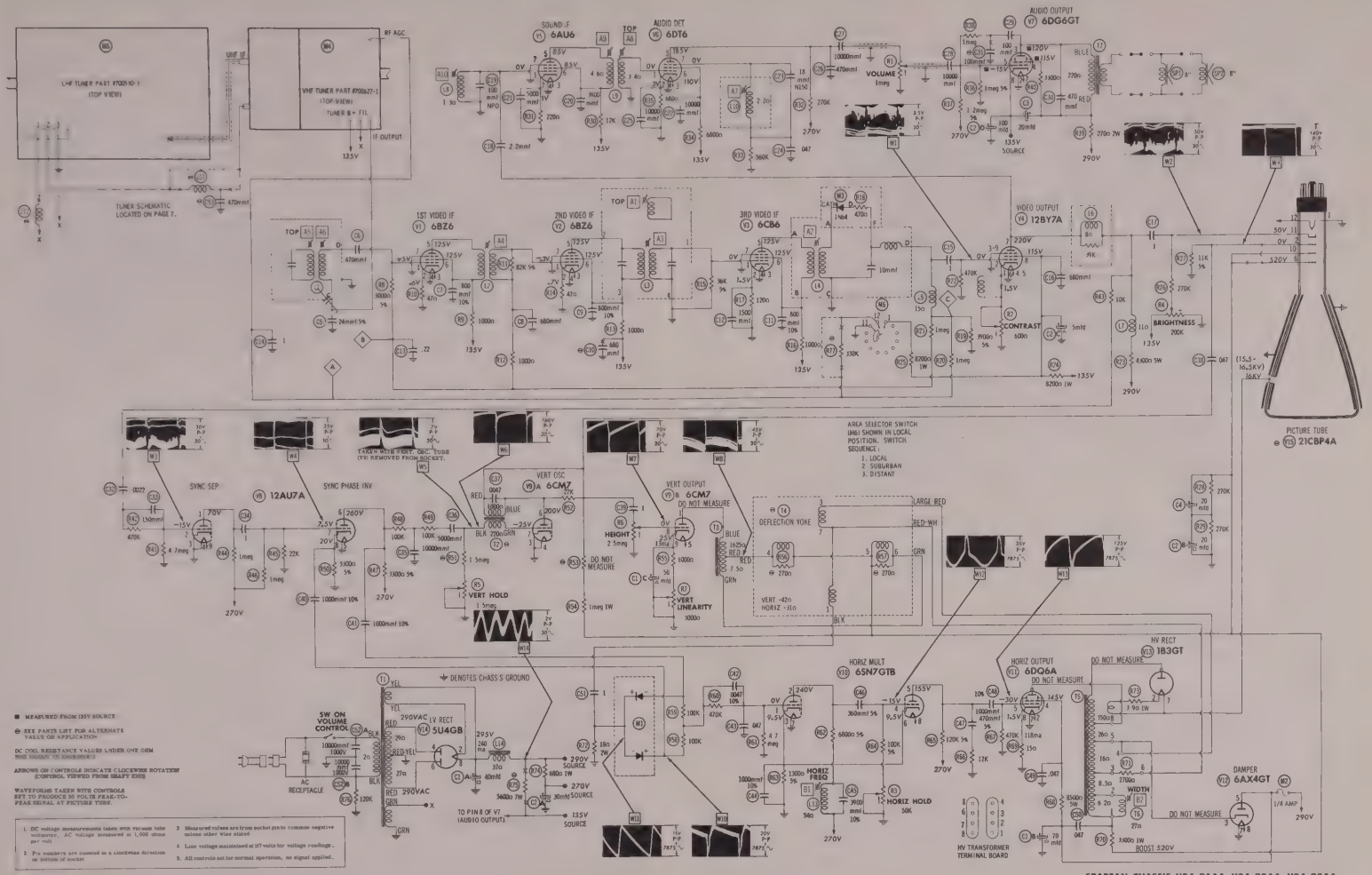
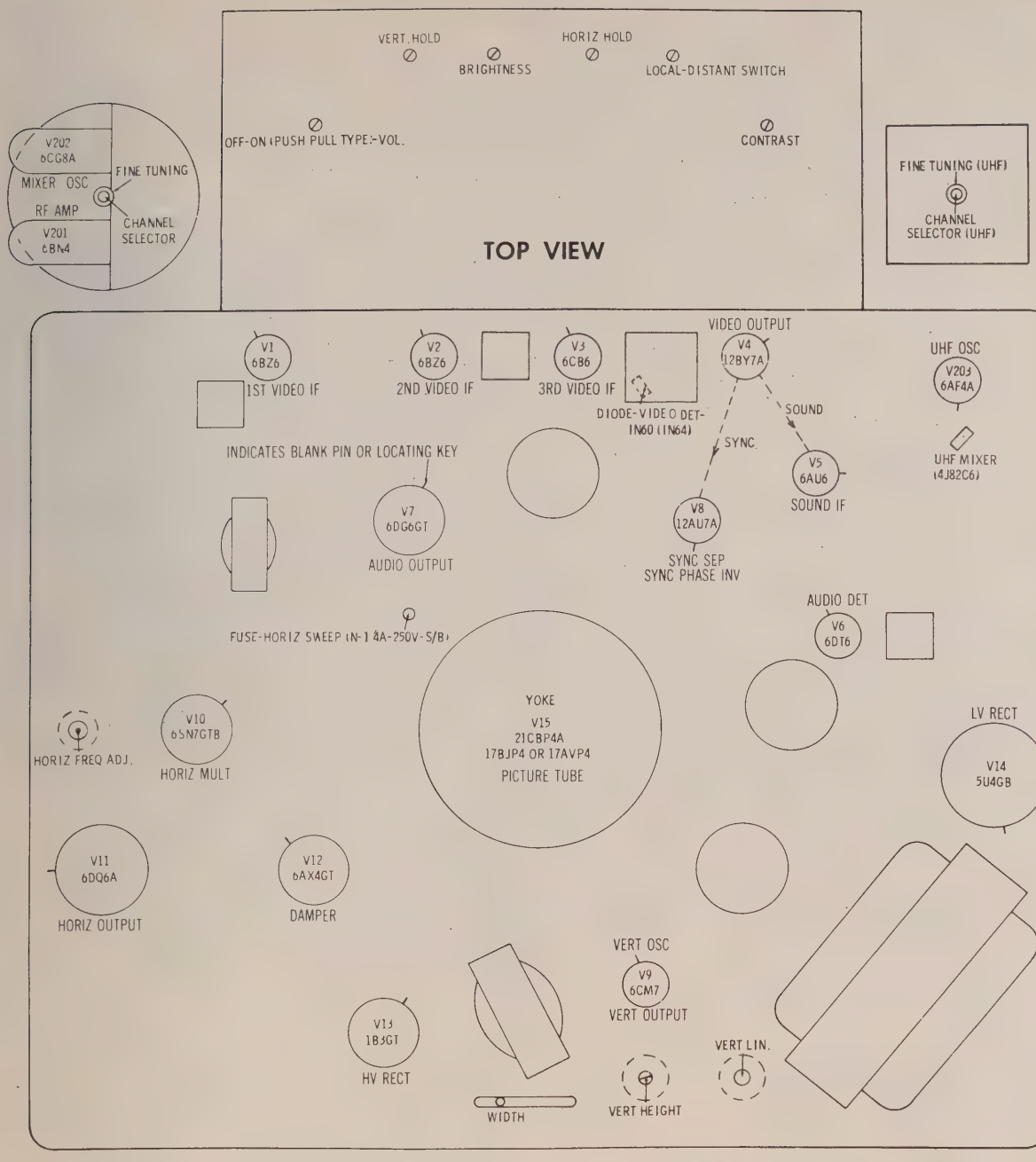
H377R


SOUND IF V1 6AU6
AUDIO DET V6 6DT6
AUDIO OUTPUT V7 6DG6GT
VOLUME 1meg
1ST VIDEO IF V1 6BZ6
2ND VIDEO IF V2 6BZ6
3RD VIDEO IF V3 6CB6
VIDEO OUTPUT V4 12BY7A
CONTRAST 600n
BRIGHTNESS 700K
PICTURE TUBE V15 21CBP4A
SYNC SEP V8 12AU7A
SYNC PHASE INV
VERT OSC V9a 6CM7
VERT OUTPUT V9b 6CM7 DO NOT MEASURE
HEIGHT 2.5meg
VERT LINEARITY 500n
VERT HOLD 1.5meg
DEFLECTION YOKE
AREA SELECTOR SWITCH (AS I SHOWN IN LOCAL POSITION. SWITCH SEQUENCE: 1. LOCAL 2. SUBURBAN 3. DISTANT
HORIZ MULT V10 6SN7GTB
HORIZ OUTPUT V11 6DQ6A DO NOT MEASURE
HV RECT V13 1B3GT
HORIZ FREQ
HORIZ HOLD 50K
WIDTH
DAMPER V12 6AX4GT
BOOST 520V
SW ON VOLUME CONTROL
AC RECEPTACLE
LV RECT V14 5U4GB
290VAC
TO PIN 8 OF V7 (AUDIO OUTPUT)
HV TRANSFORMER TERMINAL BOARD
TUNER SCHEMATIC LOCATED ON PAGE 7.
LHF TUNER PART #700510-1 (TOP VIEW)
VHF TUNER PART #700627-1 (TOP VIEW)
TUNER B+ FIL
RF AGC
IF OUTPUT
TAKEN WITH VERT. OSC. TUBE (V9) REMOVED FROM SOCKET.
DENOTES CHASSIS GROUND
MEASURED FROM 135V SOURCE
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM ARE SHOWN TO HUNDREDTHS
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless other wise stated
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V14**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, V3, Diode (M3), V4, V7**
No pic, no sound, has snow - **V201, V202, V1, V7 (V203 UHF only)**
No pic, has sound, has raster - **V4, V15, V7**
Has pic, no sound - **V5, V6, V7**

SYNC FAILURE
No vert. sync - **V8**
No horiz. sync - **V8, Rectifier (M1)**
No vert. or horiz. sync - **V8**

SWEEP FAILURE
No raster, has sound - **Fuse (M2), M1, V10, V11, V12, V13, V15**
No vertical deflection - **V9**
Poor vert. linearity or foldover - **V9**
Poor horiz. linearity or foldover - **V10, V11, V12**
Narrow picture - **V10, V11, V12, V14**
Vert. off freq. - **V9**
Horiz. off freq. - **V10**

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓐ . Positive to chassis.
Connect the negative lead of 3 volt bias supply to point Ⓑ . Positive to chassis.
Set Local-Distant switch to "Local" position. Turn contrast control fully counter clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 1 (grid) of 6BZ6 (V1). Low side to chassis.	43.5MC	47.25MC	Any non-interfering channel	Vert. amp. thru 10K to point Ⓒ . Low side to chassis. (Across video det. load).	A1	Adjust to place marker in trap notch. If two points are found to do this, use the one with slug farthest counter clockwise.
2.	"	"	"	42.25MC 45.0MC 45.75MC	"	"	A2, A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust A2 for maximum gain, A3 to place 45.75MC marker at 50% on curve and A4 to place 42.25MC marker at 50% on other side of curve. Recheck step 1.
3.	"	High side to tuner test point Ⓤ . Low side to chassis.	"	41.25MC	"	"	A5	Adjust to place marker in trap notch. If two points are found to do this, use the one with slug farthest counter clockwise.
4.	"	"	"	42.25MC 45.0MC 45.75MC	"	"	A6, Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust Mixer Plate Coil for maximum gain with 45.75MC marker at 50%. Adjust A6 for maximum gain and proper tilt. Due to interaction it may be necessary to repeat adjustment.

SOUND IF ALIGNMENT

1. Turn contrast control fully clockwise and A7 fully counter clockwise.
2. Tune in a strong TV signal (preferably with a tone signal or music). Adjust A7 just past the point of maximum sound and MINIMUM distortion.
3. Reduce the signal strength by disconnecting the antenna or connecting an adjustable attenuator between the antenna lead and the receiver antenna terminals so that with the volume control set at maximum the sound is at a low level. Tune the fine tuning thru undistorted sound. Set the fine tuning to the verge of distortion.
4. Adjust A8, A9 and A10 for MINIMUM distortion.
5. Readjust fine tuning during adjustments of A8, A9 and A10 to maintain conditions as indicated in step 3.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 8.

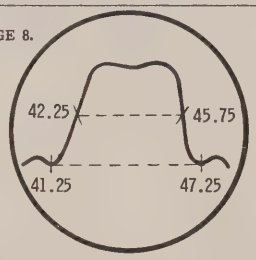
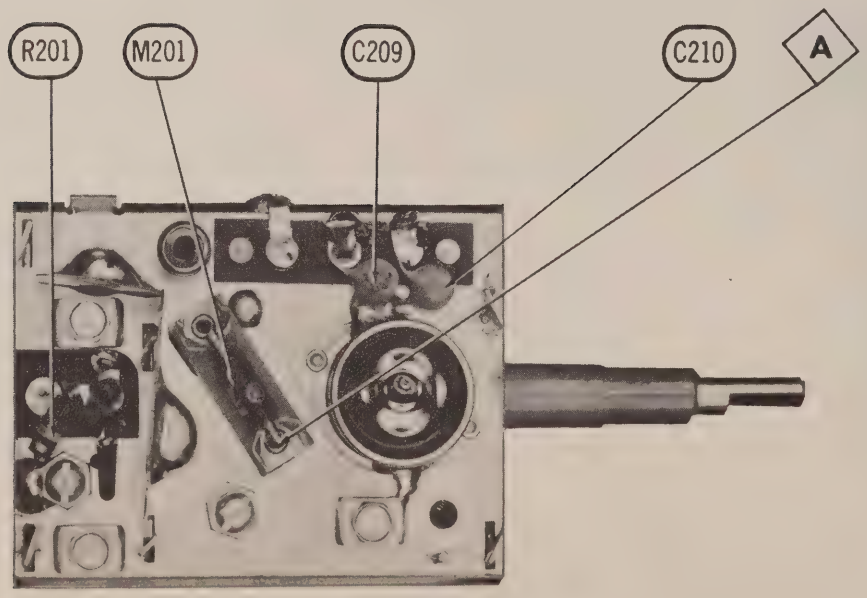
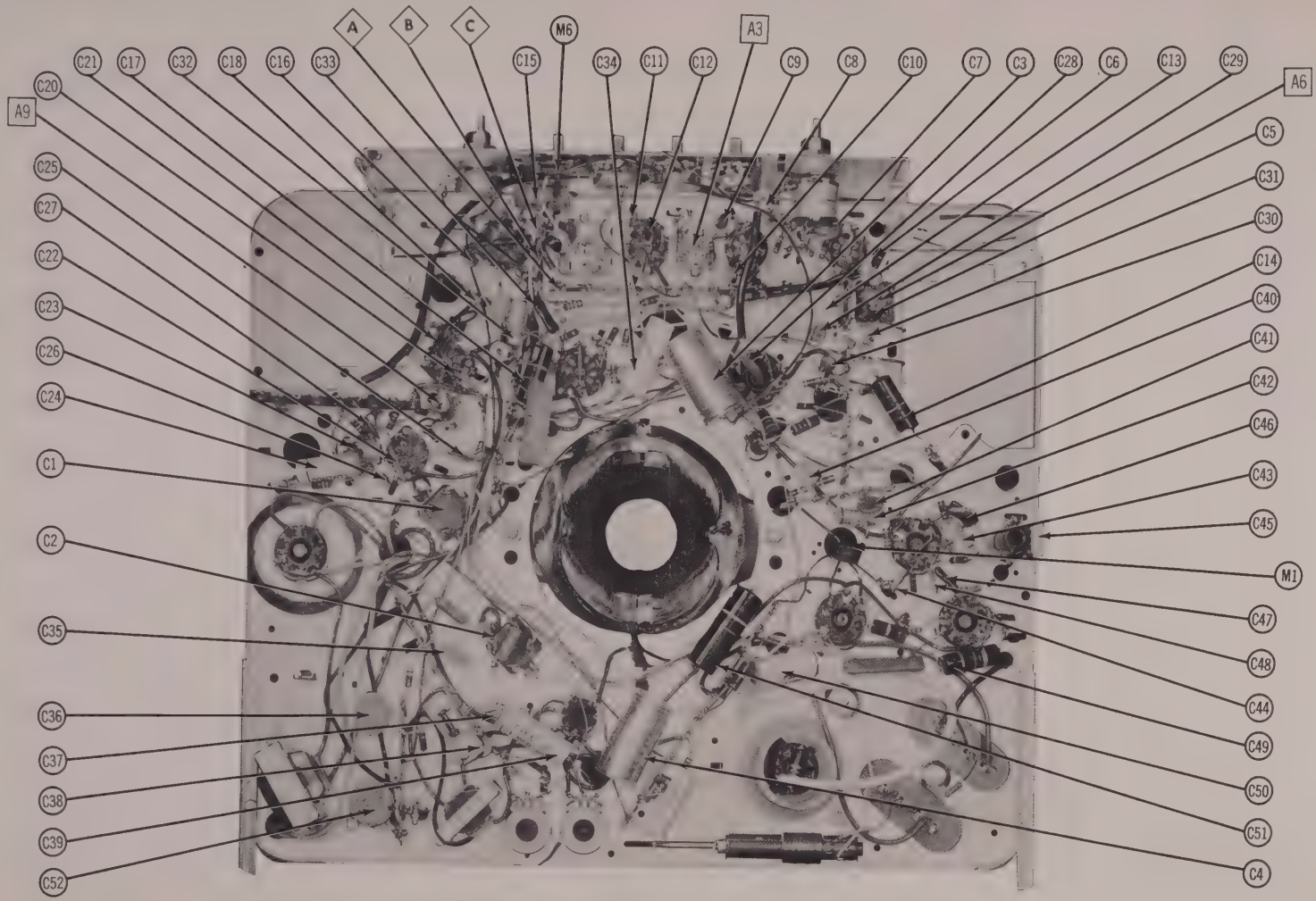


FIG. 1



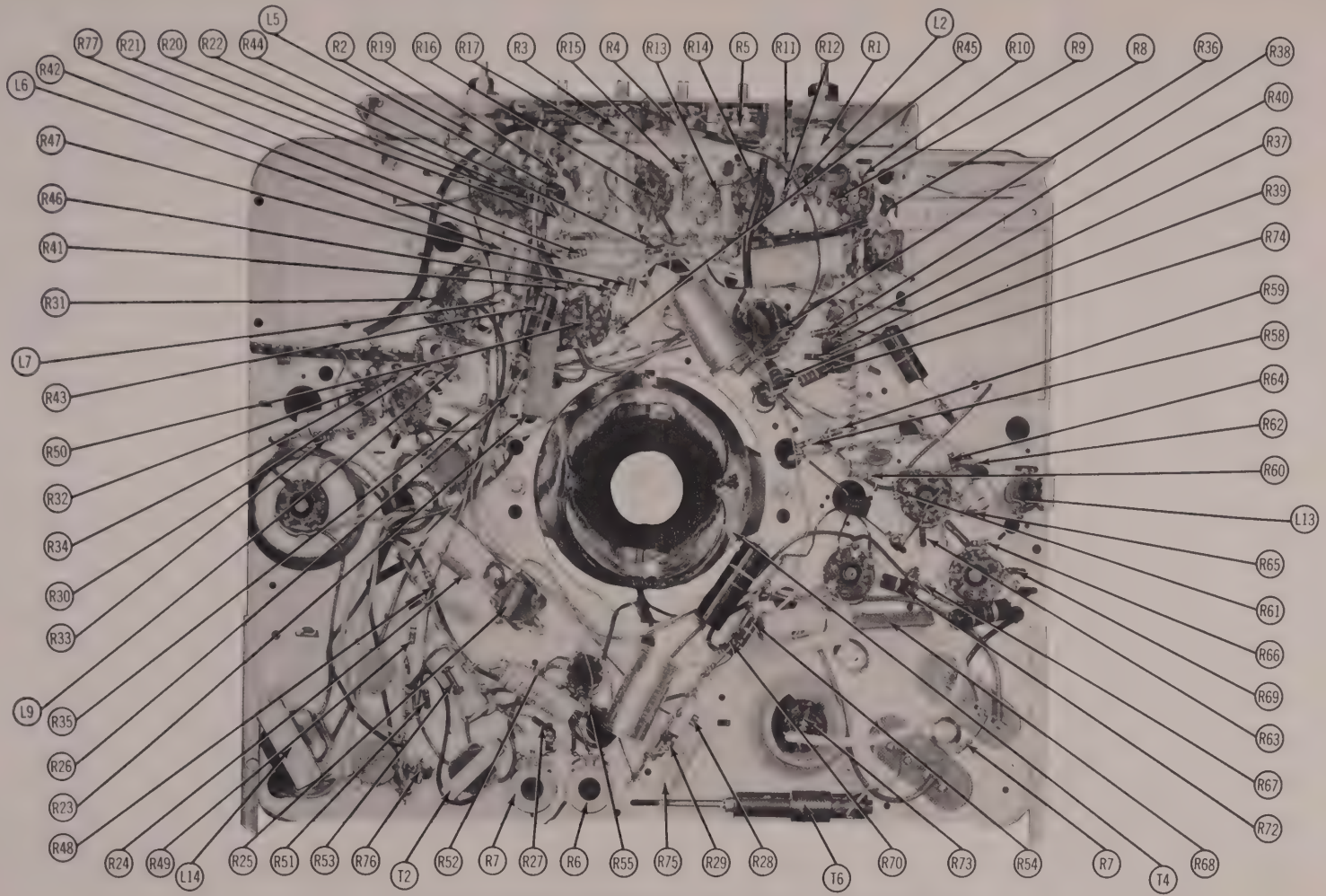
UHF TUNER TOP VIEW



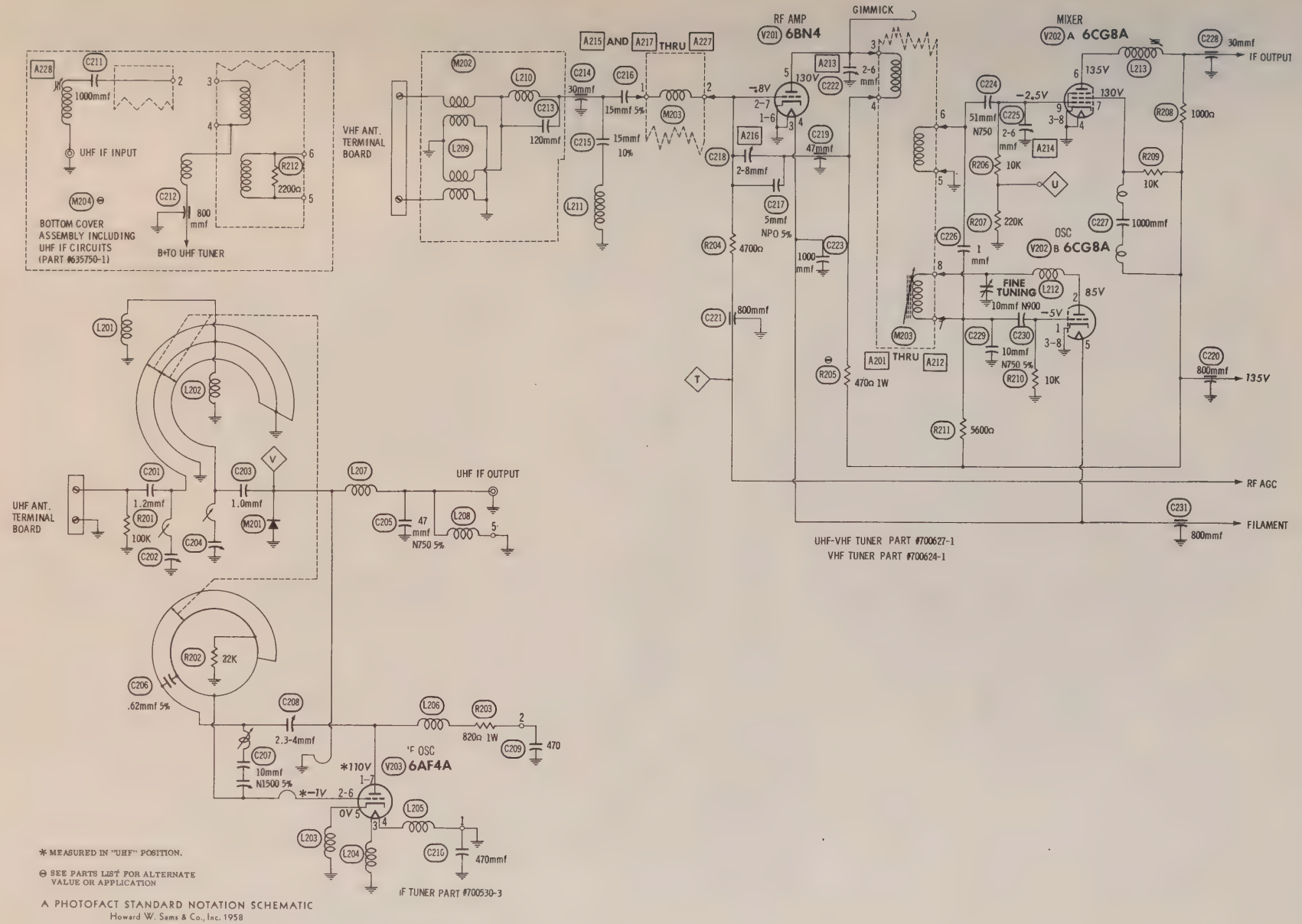
CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)

FOLDER 4



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



TUNER SCHEMATIC

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

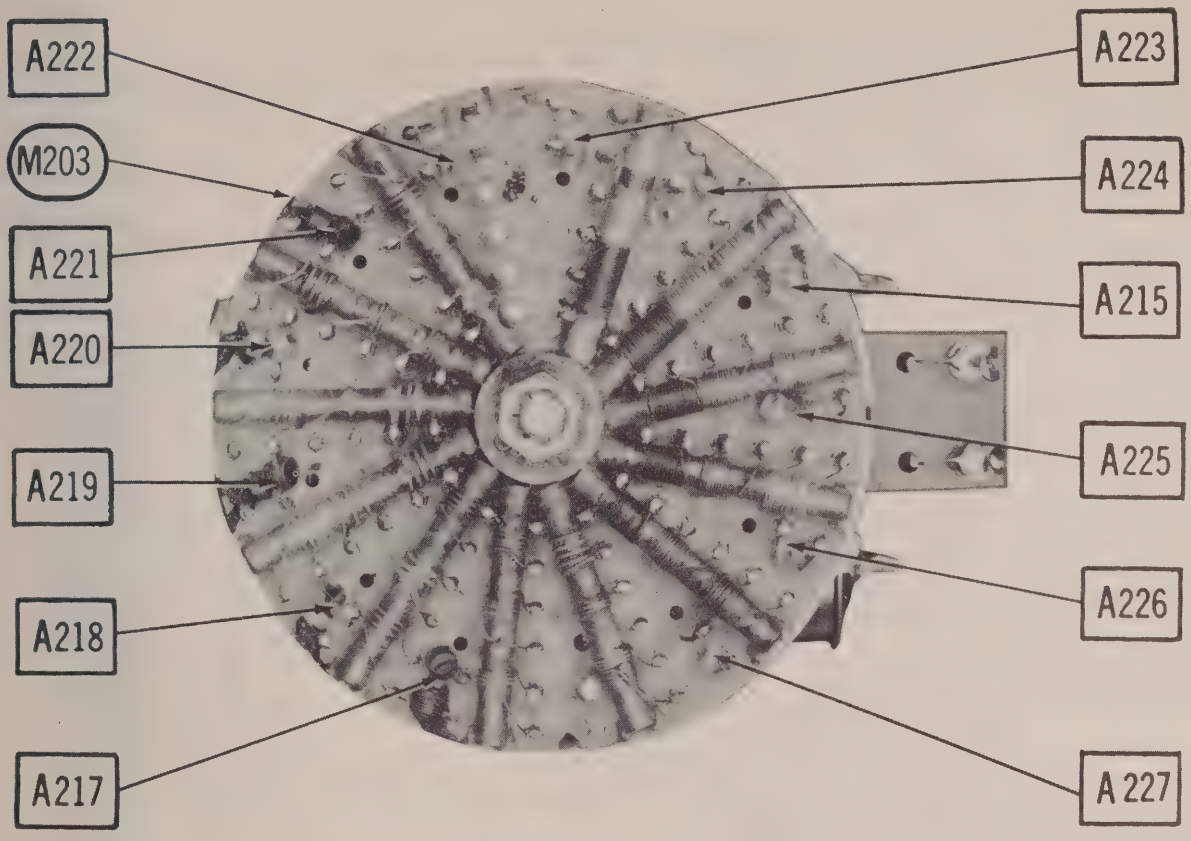
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the negative lead of a 1.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Set Local-Distant switch to "Local" and contrast control fully counter clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	Across antenna terminals thru network (Fig. 201).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K across video detector load.	A201	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A202	
			201MC	199.25MC 203.75MC	11		A203	
			195MC	193.25MC 197.75MC	10		A204	
			189MC	187.25MC 191.75MC	9		A205	
			183MC	181.25MC 185.75MC	8		A206	
			177MC	175.25MC 179.75MC	7		A207	
			85MC	83.25MC 87.75MC	6		A208	
			79MC	77.25MC 81.75MC	5		A209	
			69MC	67.25MC 71.75MC	4		A210	
			63MC	61.25MC 65.75MC	3		A211	
			57MC	55.25MC 59.75MC	2		A212	

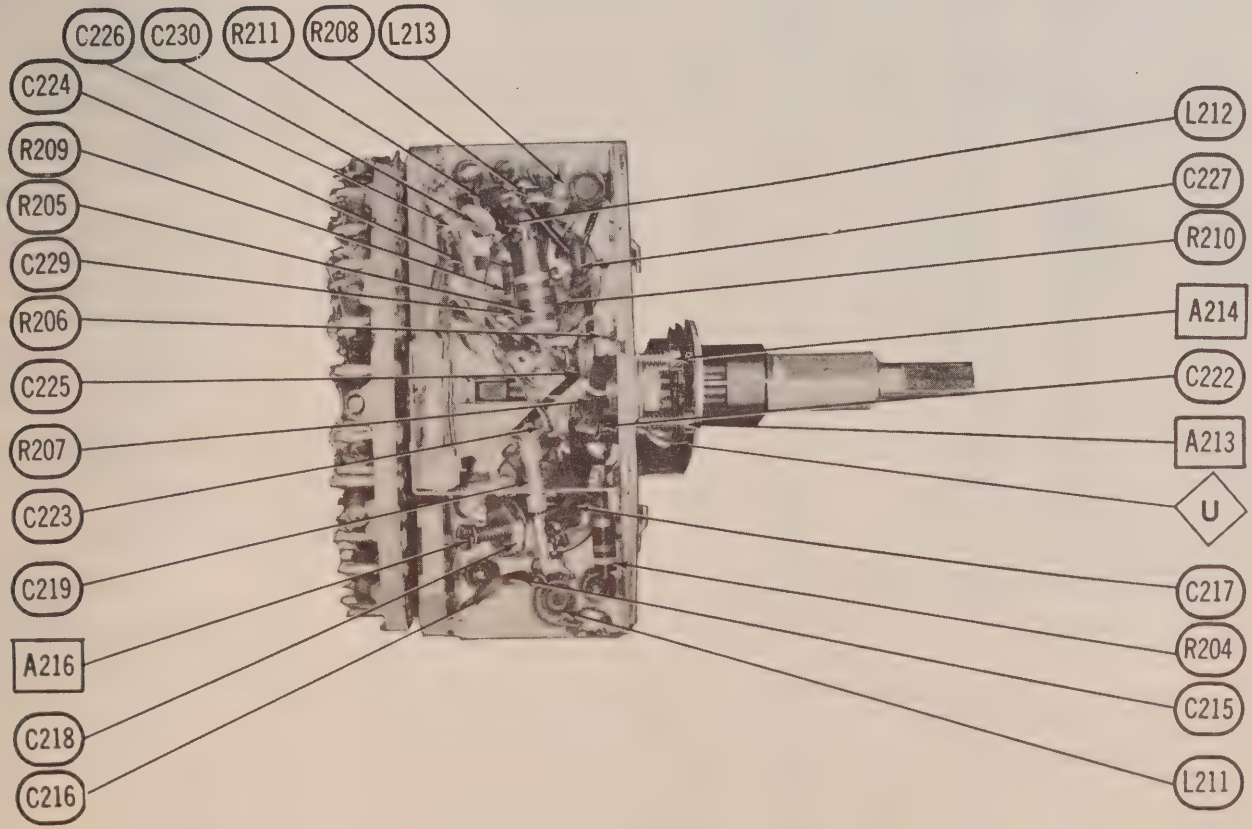
VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Antenna coils (A215 and A217 thru A227) are adjusted thru a rectangular hole on the opposite side of the tuner from the oscillator slug adjustments.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Fig. 201	Across VHF antenna terminals thru matching network (Fig. 201).	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point U. Low side to chassis.	A213, A214, A215, A216	Connect a 22Ω ½ watt carbon resistor across the terminals of the channel 10 antenna coil (A215). Adjust A213 and A214 for a balanced response curve similar to Fig. 203. Remove 22Ω resistor from A215. Adjust A215 by expanding or compressing coil turns for maximum gain between markers with balanced peaks. If the valley is not centered between the two balanced peaks, remove the B plus to the tuner and adjust A216 with a non-metallic alignment tool until the valley is centered between peaks as in Fig. 204. Reconnect B plus to the tuner. Replace tuner shield on tuner.
3.	"	"	213MC	211.25MC 215.75MC	13	"	A217	Adjust for maximum gain and symmetry similar to Fig. 203.
4.	"	"	207MC	205.25MC 209.75MC	12	"	A218	"
5.	"	"	201MC	199.25MC 203.75MC	11	"	A219	"
6.	"	"	189MC	187.25MC 191.75MC	9	"	A220	"
7.	"	"	183MC	181.25MC 185.75MC	8	"	A221	"
8.	"	"	177MC	175.25MC 179.75MC	7	"	A222	"
9.	"	"	85MC	83.25MC 87.75MC	6	"	A223	"
10.	"	"	79MC	77.25MC 81.75MC	5	"	A224	"
11.	"	"	69MC	67.25MC 71.75MC	4	"	A225	"
12.	"	"	63MC	61.25MC 65.75MC	3	"	A226	"
13.	"	"	57MC	55.25MC 59.75MC	2	"	A227	"



RF TUNER ROTARY ASSEMBLY



RF TUNER BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	6BZ6	
V2	2nd Video IF Amp	6BZ6	
V3	3rd Video IF Amp.	6J86	
V4	Video Output	12BY7A	
V5	Sound IF Amp	6AU8	
V6	Audio Det	6DT6	
V7	Audio Output	6JX8GT	

ITEM No	USE	TYPE	NOTES
V8	Sync Sep -Sync Phase Inv	12AU7A	
V9	Vert Osc -Vert Output	6CM7	
V10	Horiz Mult	6SN7GTB	
V11	Horiz Output	6DQ6A	
V12	Damper	6AX4GT	
V13	HV Rectifier	1B3GT	
V14	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No	REPLACEMENT DATA: SPARTAN PART No	GENERAL ELECTRIC No	RCA PART No	SYLVANIA PART No	NOTES
V15			21CBP4 A 1	21CBP4 1	1 Silverama
				21CBP4A 2	2 Silver screen 65°
			21CBP4 A 1	21CBP4 3	3 Aluminized
				21CBP4A 2	
	17BJP4		17BJP4 D	17BJP4 1	
	17AVP4	17AVP4A	17AVP4-A	17ATP4A 1	
		17ATP4-A	17ATP4-A 1	17ATP4A 2	
				17ATP4	
				17AVP4	

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: SPARTAN PART No	AEROVOX PART No	CORNELL DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No
C1A	40	350	170021-62	AFH3-154-30	10471	FP264 5	TMT-97	T-410	R3351 *
B	270	350				TC39	TCD-30-350	MT-4550	
C	50	50							
C2A	30	350	170021-64	AFH4-56-93.5	DO418	FP420 29		T-735	R2346 *
B	30	350				TC65		MTD-4508	
C	5	350							
D	100	200							
C3	20	350	170021-20	PRS4509V20	BR2035	TC65	TD-20-350	MT-4520	TVA-1808
C4	20	350	170021-20	PRS4509V20	BR2035	TC65	TD-20-350	MT-4520	TVA-1808

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd for Paper Capacitors, and in mmfd for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: SPARTAN PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C5	24		250226-315	1469-000024	TCZ-24	22R5Q24	CY10C2404		MS-424	5%
C6	470		250216-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C7	800		250218-12			1R5T8		MS-38	MS-38	10%
C8	680		250218-4	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	
C9	800		250218-44			1R5T8			MS-38	10%
C10	680		250218-4	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	
C11	800		250218-44			1R5T8			MS-38	10%
C12	1500		250218-15	BPD-0015	DD-152	BYA10T25	ED-1500	DC5215	5HK-D15	
C13	22	200	250202-15	P288N-22		CUB2P22		GEM-2022	ZTM-P22	
C14	1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-201	ZTM-P1	
C15	1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-201	ZTM-P1	
C16	680		250218-4	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	SGA-T68	
C17	1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-201	ZTM-P1	
C18	2.2		250221-15	NPO-01 2.2	TCZ-2R2	CY10C2R2	TCO-2.2		TCZ-2R2	
C19	100		250175-99	NPO-D1 100		CY01C	TCO-100	ZT-531	STCO-T1	NPO
C20	1000		250175-21	BPD-0102	DD-392	BYA10D	ED-004		SGA-D39	
C21	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C22	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC51	5HK-S1	
C23	.1		250171-24							N150
C24	.047	200	250202-11	P288N-047	DD-503	CUB2S47		GEM-4147	ZTM-S47	
C25	10000		250218-19	BPD-01	DD-103	BYA6S1	TD-01	DC51	5HK-S1	
C26	470		250216-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C27	10000		250175-2	BPD-01	DD-103	BYA6S1	ED-01	DC51	5HK-S1	
C28	10000		250175-3	BPD-01	DD-103	BYA6S1	ED-01	DC51	5HK-S1	
C29	100		250218-22	BPD-0001	DD-101	L07T1	ED-100	UC-531	SGA-T1	
C30	470		250218-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	
C31	100			BPD-0001	DD-101	L07T1	ED-100	UC-531	SGA-T1	
C32	.0022	400	250221-3	P288N-0022	DE-233	CUB5D22	GP-2200	GEM-6222	STM-D22	
C33	750		1455-00015	DE-152	5W5T15	ED-150	UC-5315	1FM-515		
C34	.1	400	250221-13	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C35	10000		250218-19	BPD-01	DD-103	BYA6S1	ED-01	DC51	5HK-S1	
C36	5000		250218-13	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C37	.0047	400	250221-5	P488N-0047	DE-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C38	.047	400	250212-7	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C39	.1	400	250212-13	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C40	1000		250216-8			1R5D1	ED-1000	MCB255	MS-2L	10%
C41	1000		250216-8			1R5D1	ED-1000	MCB255	MS-2L	10%
C42	.0047	400	250212-4					GEM-16247		10%
C43	.047	200	250212-5	P288N-047	DF-503	CUB2S47		GEM-4147	ZTM-S47	
C44	1000		250216-8			1R5D8	ED-1000		MS-2L	10%
C45	3300		250228-458	1489-0039		1R5G39			MS-339	10%
C46	360		250229-343	1489-00036		5R5T36	CY15C361V		MS-336	5%
C47	470		250229-346	1464-00047		5R5T47	CY15C471J		MS-347	5%
C48	1000		250218-8			1R5D1	ED-1000	MCB255	MS-2L	10%
C49	.047	400	250212-11	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C50	.047	400	250211-11	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C51	.1	400	250201-13	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C52A	10000	1000	250218-3	DAC-27	DDE-103	BYA10SM			SGA-S10	
B	10000	1000		DAC-27	DDE-103	BYA10SM			BL-S10	
C53	470		250216-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	SGA-T47	

‡ Not used in some versions.

CONTROLS

ITEM No	RATING: RESIST ANCE	WATTS	REPLACEMENT DATA: SPARTAN PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	1meg	½	320135-1	B-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			K3-1 *	SWE-12	78-1	US-28	
R2A	600Ω	½	320136-56	B-415		Q1-105	U75R	Contrast
B	Shaft			Not Req.		Not Req.	Not Req.	
R3A	50K	½	320132-1	B-31	A47-50K-B	Q31-133	TA54L	Horiz. Hold
B	Shaft			Not Req.		Not Req.	Not Req.	
R4A	200K	½	320133-2	B-46	A47-200K-B	Q31-129	U43	Brightness
B	Shaft			Not Req.		Not Req.	Not Req.	

CONTROLS (cont)

ITEM No	RATING: RESIST ANCE	WATTS	REPLACEMENT DATA: SPARTAN PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R5A	1 5meg	½	320132-13	B-742	A47-1.5meg	Q31-138	TA155L	Vert Hold
B	Shaft							
R6A	2.5meg	½	320148-2	Not Req.	KSH-3	Not Req.	Not Req.	Vert. Height
				AB-83	A47-2 5meg	H11-239	TA255L	
B	Shaft				FKS-1/4	TM3-K11	Not Req.	Vert Lin.
R7A	3000Ω	½	320146-5	AB-6	A47-3000-S	Bil-113	PTA352L	
B	Shaft			AK-1	FKS-1/4	TM3-K11	Not Req.	

* Use 10K-1 with red label control

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING: OHMS	WATT	SPARTAN PART No	NOTES
R8	3000Ω 5%		230094-180	
R9	1000Ω		230104-83	
R10	47Ω		230101-48	
R11	82K 5%		230094-308	
R12	1000Ω		230104-83	
R13	1000Ω		230104-83	
R14	47Ω		230104-46	
R15	39K 5%		230094-196	
R16	1000Ω		230104-83	
R17	180Ω		230104-51	
R18	470Ω			
R19	39000 5%		230094-179	
R20	1meg		230104-98	
R21	1meg		230104-98	
R22	470K		230104-94	
R23	43000	5	240073-4	
R24	3300Ω	1	230105-73	
R25	3300Ω	1	230105-73	
R26	270K		230104-91	
R27	11K 5%		230094-184	
R28	270K		230104-91	
R29	270K		230104-91	
R30	12K		230104-75	
R31	220Ω		230104-54	
R32	270K		230104-91	
R33	560K		230104-95	
R34	6800Ω		230104-72	
R35	680Ω		230104-60	
R36	1meg 5%		230094-231	
R37	1. 2meg 5%		230094-233	
R38	1meg		230104-98	
R39	270Ω	2	230105-55	
R40	3300Ω		230104-88	
R41	4 7meg		230104-106	
R42	470K		230104-94	

ITEM No	RATING: OHMS	WATT	SPARTAN PART No	NOTES
R43	10K		230104-74	
R44	1meg		230104-98	
R45	220K		230104-78	
R46	1meg		230104-98	
R47	33000 5%		230094-171	
R48	100K		230104-86	
R49	100K		230104-86	
R50	3300Ω 5%		230094-171	
R51	1.5meg			Note 1
R52	33K		230104-78	
R53			230150-3	Note 2
R54	1meg	1	230105-98	
R55	100Ω		230104-63	
R56	270Ω		230104-55	Note 3
R57	270Ω		230104-55	Note 3
R58	100K		230104-86	
R59	100K		230104-86	
R60	470K		230104-94	
R61	4. 7meg		230104-106	
R62	6800Ω 5%		230094-179	
R63	1300Ω 5%		230094-163	
R64	100K 5%		230094-207	
R65	120K 5%		230094-209	
R66	12K			
R67	470K		230104-94	
R68	68000	5	240075-35	
R69	15Ω		230104-40	
R70	3300Ω	1	230105-89	
R71	3700Ω		230104-87	
R72	18Ω	2	230106-41	
R73	3. 6Ω	1	230107-3	
R74	680Ω	1	230104-60	
R75	5600Ω	7		
R76	120K		230110-1	
R77	330K			Note 4

Note 1. Some versions may use 2meg (Part #230094-238) in this application.
Note 2 Temperature compensating. Do not measure
Note 3 Some versions may use 300Ω in this application
Note 4 Not used in some versions

TRANSFORMER (POWER)

ITEM No	RATING: PRI.	SEC 1	SEC. 2	SEC. 3	REPLACEMENT DATA: SPARTAN PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No.
T1	117V @1 9A	580VCT @ 240A	5V @ 3A	6.3V @8.5A	300093-1		P-307X‡		28R90 ‡	R-68BC ‡

① Use original mounting bracket.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: SPARTAN PART No.	Halldorson PART No	Merit PART No.	Ram PART No.	Stancor PART No	Thordarson PART No	Triad PART No.	NOTES
T2	Vert. Osc.	320262-2B	B6702	A-3003	V406	VBO-201	28A04	A-97X	
	Alt Vert. Osc	320262-2							
T3	Vert. Output	320263-1	Z1807①	A-2824‡	V315 ‡	A-8141 ②	28S54 ②	A-109X ② ③	
T4A	Yoke-Horiz. (21MIE)	XD580617-2	DF813	MDF-93	Y90F18/43	DY-36A	Y-18 ④	Y-41 & NW23 ⑤	
B	(90°)-Vert (45MIE)		① ⑦	① ⑦	① ⑦	① ⑦			
	Alt. Yoke	380617-1	DF612 ⑥ ⑦	MFD-92 ① ⑦	Y90F19/42 ① ⑦	DY-36A ⑥ ⑦	Y-18 ④ ⑥ ⑦	Y-41 & NW23 ⑤	
M7	Rear Cover & Centering Device	380738-1							
T5	Horiz. Output	380700-1		HVO-175	X152 *	A-8295 *		D-92 *	
T6	Width Coil (7-22MR)	380699-1		MWC-12 ⑦	20MR3A ⑦	WC-18	WC-19⑦	WLC-3 ⑦	

① Cut and tape blanking lead
② Drill new mounting hole(s).
③ Connect as autoformer.
④ Use original yoke damping network.
⑤ Use original rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	6		8	8	8		8
	5 & 4		5	5	5		5
	3 -		3	3	3		3
	2		3	3	2		2
	1		1	1	1		1
Connect Width Coil Across	2 & 1		2 & 1	2 & 1	2 & 1		2 & 1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC	REPLACEMENT DATA: SPARTAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No	Thordarson PART No.	Triad PART No.	NOTES
T7	3200Ω	3-4Ω	320280-1	Z1008	A-3018	AU-804	A-3849	28S90	6-5Z	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: SPARTAN PART No.	QUAM PART No.	NOTES
SP1	8"	PM	8-8Ω	533965 ①	8A42S.6 ①	① Phase
SP2	8"	PM	8-8Ω	533697 ①	8A32S8 ①	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: SPARTAN PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	1st. Video IF	380654-1		17-4503			Includes 41. 25MC Trap
L2	2nd. Video IF	380720-1		17-4532	TV-120	6219	VF-3
L3	3rd. Video IF	380644-1					Includes 47. 25MC Trap
L4	4th. Video IF	380643-1		17-4511			Includes assy.
L5	Shunt Peaking Coil	380622-12		19-3500	TV-303	6176	VP-8 500 Microhenries
L6	Series Peaking Coil	380623-15		19-3350 *	TV-185 *	6181 *	VP-6 * 235 Microhenries, wound on 39K resistor
L7	Shunt Peaking Coil	380622-16		19-3300	TV-186	6130	VP-5 275 Microhenries
L8	1st. Sound IF	380704-1		20-1004	TV-181	1469 ▲	SF-3
L9	2nd. Sound IF	380715-1					
L10	Quadrature Coil	380716-1					SD-5
L11	RF Choke			18-1000	BC-561	4603	1.1 Microhenries -Note 1
L12	Fil. Choke			18-1000	BC-561	4603	1 Microhenry,
							2MC part #CLA-Note 1

* Parallel with 39K resistor.
▲ Disregard tap.
Note 1. Not used in some versions.

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES: PRI.	SEC	REPLACEMENT DATA: SPARTAN PART No	Meissner PART No	Merit PART No	Miller PART No	Ram PART No	Thordarson PART No	NOTES
L13	54Ω		380579-1		TV-165 ▲		H-102	HS-7 ▲ *	22-78 Millihenries ▲ Disregard tap. * Drill new mounting hole.

FILTER CHOKE

ITEM No	RATINGS: TOTAL DIRECT CURRENT	D C RESISTANCE	INDUCTANCE (0 CURRENT 1000 ^)	REPLACEMENT DATA: SPARTAN PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
L14	240A	37Ω	.5 Hy	320058-3	C5037 ‡	C-2998 ‡	C-2336 ‡	26C44 ‡	C-27X ‡

‡ Drill new mounting hole.

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: SPARTAN PART No	FEDERAL PART No	GENERAL ELECTRIC PART No	INTERNATIONAL PART No	SARKES TARZIAN PART No	NOTES
M1		530045-2 ‡	1215 ‡②		1T1 ‡ ②		‡ Selenium ② 2 Required.
M2	N	1/4A 125V S/B	180590-5		333. 250 (N 1/4A-125V S/B)	364008	N 1/4 HN 0 to 3/10

FUSES

ITEM No	TYPE	RATING	REPLACEMENT DATA: SPARTAN PART No: FUSE	HOLDER	LITTELFUSE PART No: FUSE	HOLDER	BUSS PART No: FUSE	HOLDER
M2	N	1/4A 125V S/B	180590-5		333. 250 (N 1/4A-125V S/B)	364008	N 1/4	HN 0 to 3/10

CRYSTAL DIODES

ITEM No.	ORIG TYPE	REPLACEMENT DATA: SPARTAN PART No	CBS PART No	SYLVANIA PART No	NOTES
M3	1N84		1N84	1N80	Video Detector (Pigtail)

MISCELLANEOUS

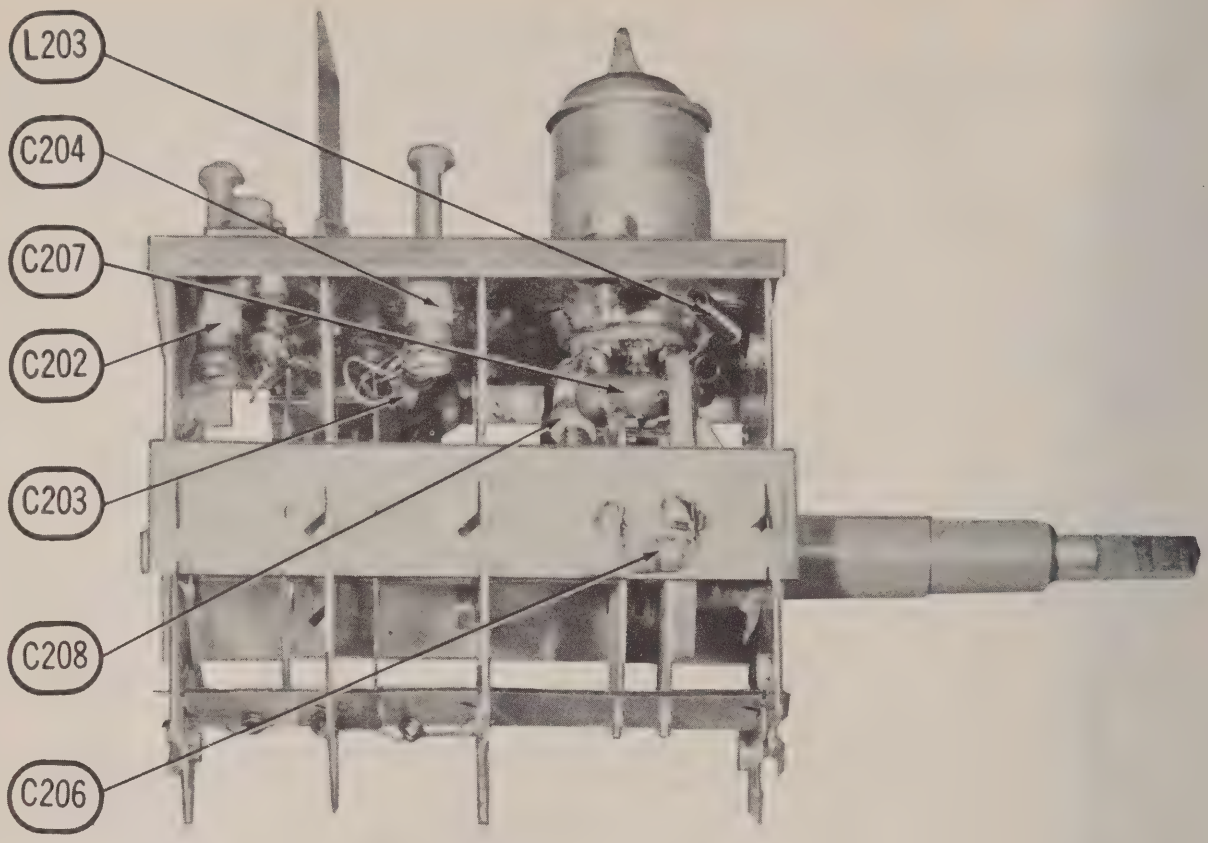
ITEM No.	PART NAME	SPARTAN PART No.	NOTES
M4	Tuner	700627-1	UHF-VHF (Ch. U24-01AA, -02AA, -03AA, -04AA, -06AA)
M5	Tuner	700824-1	VHF (Ch. V24-01AA, -02AA, -03AA, -04AA, -06AA)
M5	Tuner	700530-3	UHF (Ch. U24-01AA, -02AA, -03AA, -04AA, -06AA)
M6	Switch	160274-1	Local-Distant, Rotary-wafer type
M7	Centering Device	380738-1	Includes yoke cover
M8	Magnet	380492-8	Corrects elimination

WIRING DATA

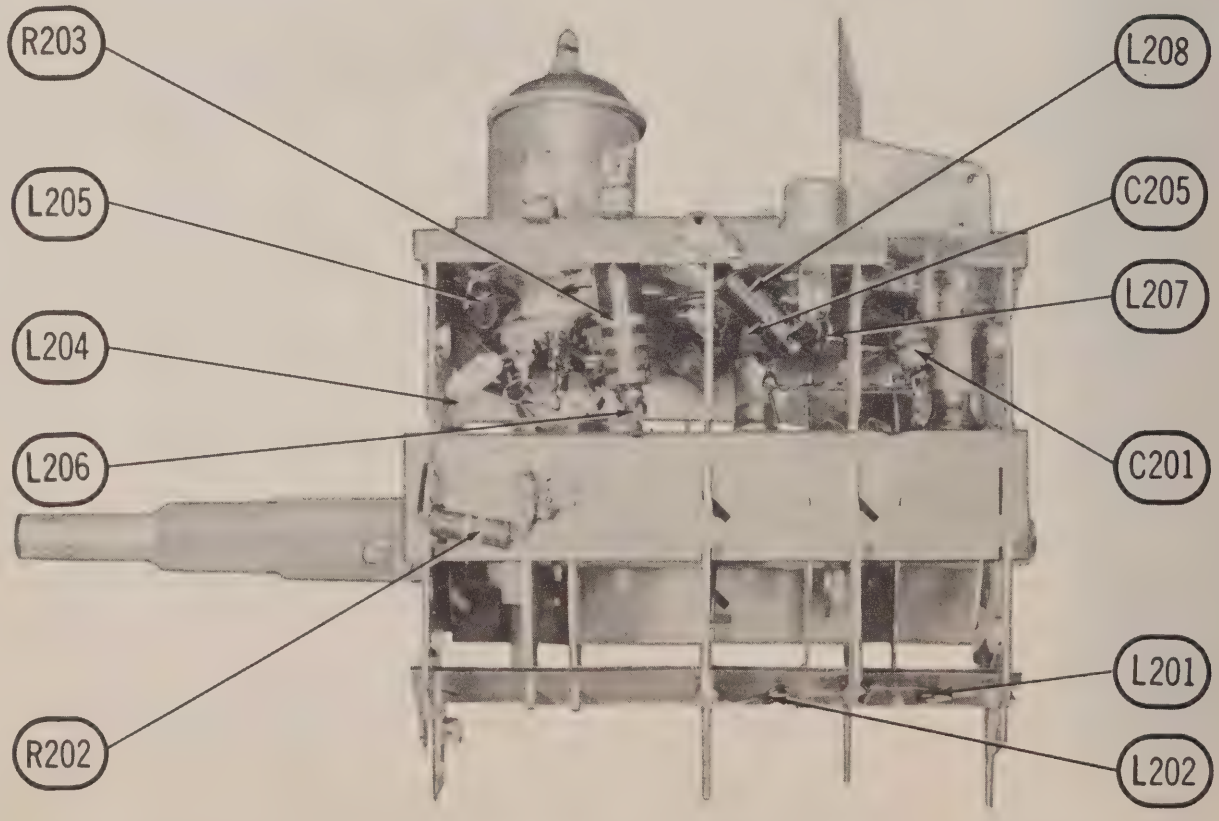
High Voltage Lead	Use BELDEN No. 8868
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 6 Conductor

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)

FOLDER 4



UHF TUNER-LEFT SIDE



UHF TUNER-RIGHT SIDE

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Connect bias as under "VHF Oscillator Alignment".
Set the Local-Distant switch to "Local" position and contrast control fully counter clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	1000Ω Carbon Resistor	High side to point (V). Low side to tuner chassis.	43.0MC (10MC Swp)	42.25MC 45.75MC	UHF	Vert. Amp. thru 10K across video detector load.	A228	Adjust for response curve similar to Fig. 205 with MINIMUM tilt.

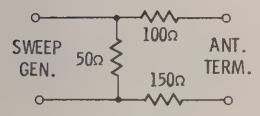


FIG 201

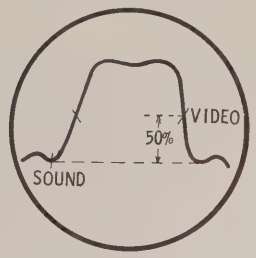


FIG. 202

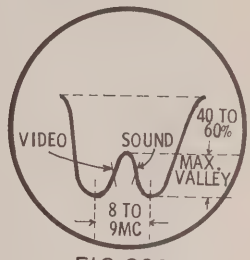


FIG. 203

FIG. 204

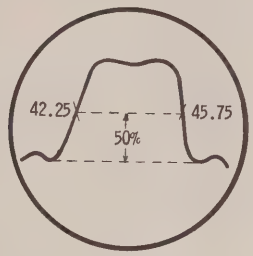
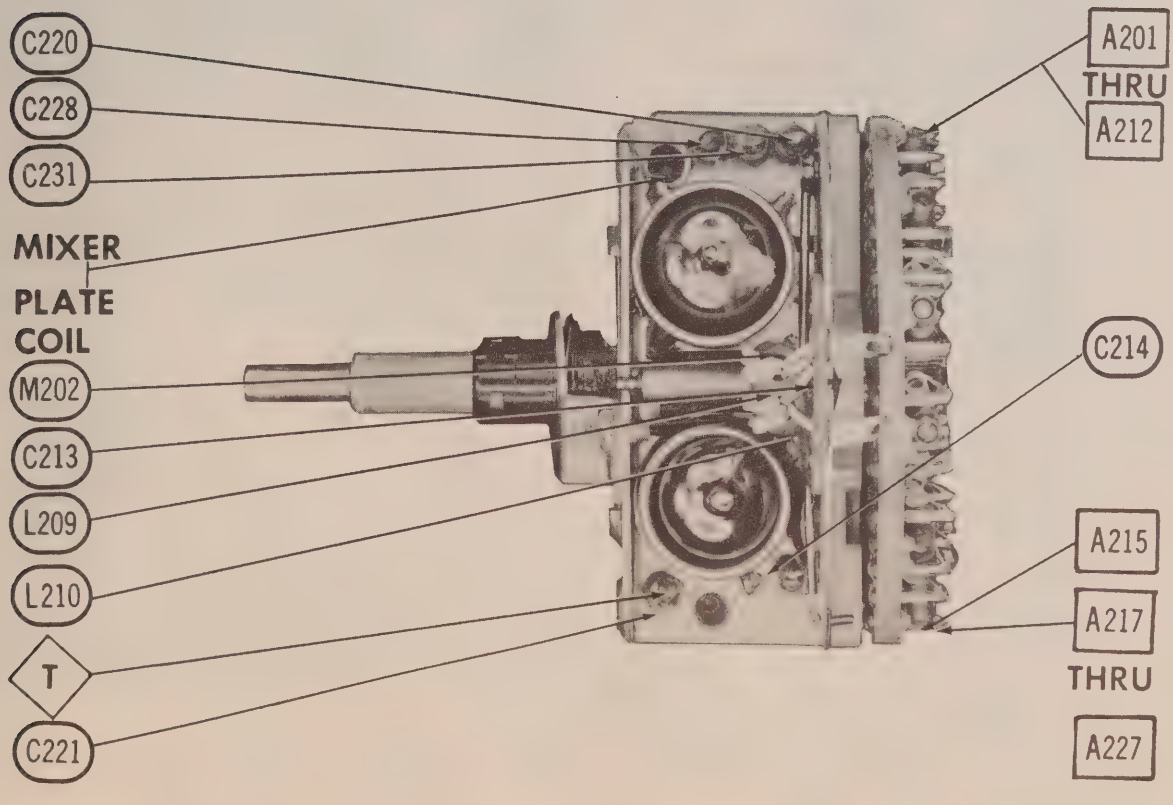


FIG. 205



RF TUNER—TOP VIEW

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA, U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA, V24-04AA, V24-06AA (24 Series)

FOLDER 4

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	6BN4	
V202	Mixer-Osc.	6CG8A	

ITEM No.	USE	TYPE	NOTES
V203	UHF Osc.	6AF4A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SPARTAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	1.2		250221-115	NPO-SI 1.0	TCZ-1		TCO-1		5TCCB-V1	
C202			250188-10							
C203	1.0		250221-114	NPO-SI 1.0	TCZ-1		TCO-1		5TCCB-V1	
C204			250188-10							
C205	47		250175-21		TCN-47		TC7-47			N750 5%
C206	.62		250221-1001							5%
C207	10		250088-140							N1500 5%
C208	2.3-4		250220-2							
C209	470		250175-8	BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	
C210	470		250175-8	BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	
C211	1000		250272-1	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C212	800		250266-1							
C213	120		250262-1	BPD-00012	DD-121	L10T12	ED-120	UC-5312	5GA-T12	
C214	30		250263-1							
C215	15		250264-1	NPO-DI 15	DD-150	L10Q15	ED-15		5TCC-Q15	10%
C216	15		250265-1		TCZ-15		TCO-15			5%
C217	5		250274-1		TCZ-4R7		TCO-5			NPO 5%
C218	2-8		260145-1							
C219	47		250273-1							
C220	800		250266-1							
C221	800		250266-1							
C222	2-6		260144-1							
C223	1000		250272-1	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C224	51		250267-1							N750
C225	2-6		260144-1							
C226	1.0		250268-1	NPO-SI 1.0	TCZ-1		TCO-1		5TCCB-V1	
C227	1000		250271-1	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C228	30		250263-1							
C229	10		250270-1		TCN-10		TC7-10			N750 5%
C230	10		250269-1							N900
C231	800		250266-1							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SPARTAN PART No.	NOTES
	OHMS	WATT		
R201	100K		230104-86	
R202	22K		230104-78	
R203	820Ω	1	230145-61	
R204	4700Ω		230104-70	
R205	470Ω	1	230105-62	Note 1
R206	10K		230104-74	

ITEM No.	RATING		SPARTAN PART No.	NOTES
	OHMS	WATT		
R207	220K		230104-90	
R208	1000Ω		230104-62	
R209	10K		230104-74	
R210	10K		230104-74	
R211	5600Ω		230104-71	
R212	2200Ω		230104-66	

Note 1. VHF tuner #700624 uses 1000Ω 1W (Part #230105-62) in this application.

COILS (RF-IF)

ITEM No.	USE	SPARTAN PART No.	NOTES
L201	RF Choke	360574-30	
L202	RF Choke	360574-30	
L203	Cathode Choke	360522-7	
L204	Fil. Choke	360574-8	
L205	Fil. Choke	360574-8	
L206	RF Choke	360574-8	
L207	RF Choke	360574-12	

ITEM No.	USE	SPARTAN PART No.	NOTES
L208	RF Choke	360574-50	
L209	VHF Ant.Trans.	360744-1	
L210	IF Trap	360740-1	
L211	IF Trap	360741-1	
L212	Osc. Coil	360742-1	
L213	Mixer Plate Coil	360743-1	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		SPARTAN PART No.	CBS PART No.	SYLVANIA PART No.	
M201		530036-1	1N82A	1N82A	UHF Mixer (Clip-in)

MISCELLANEOUS

ITEM No.	PART NAME	SPARTAN PART No.	NOTES
M202	Ant. Network	460921-1	Includes L209, L210, C213
M203	Rotor Assy.	160283-1	Complete, includes shaft
M204	Rear Cover Assy.	635750-1	Includes coils, caps and contacts UHF-VHF tuner part #700627
	Rear Cover Assy.	635749-1	VHF tuner part #700624
	Extension Contact	635751-1	UHF connections on rotor
	Osc. Slug	110375-1	12 used
	Spring Contact	635748-1	Stator (7 used)

CHASSIS TOP VIEW

SPARTAN CHASSIS U24-01AA, U24-02AA, U24-03AA,
U24-04AA, U24-06AA, V24-01AA, V24-02AA, V24-03AA,
V24-04AA, V24-06AA (24 Series)

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1meg	47Ω	.1Ω	0Ω	■ 1000Ω	■ 1000Ω	0Ω		
V2	6BZ6	1meg	47Ω	.1Ω	0Ω	■ 1000Ω	■ 1000Ω	0Ω		
V3	6CB6	.1Ω	120Ω	.1Ω	0Ω	■ 1000Ω	■ 1000Ω	0Ω		
V4	12BY7A	• 80Ω	470K	0Ω	.1Ω	.1Ω	0Ω	† 4300Ω	■ 8200Ω	0Ω
V5	6AU6	1.3Ω	0Ω	.1Ω	0Ω	■ 12K	■ 12K	220Ω		
V6	6DT6	3.4Ω	680Ω	.1Ω	0Ω	† 270K	■ 6800Ω	560K		
V7	6DG6GT	TP	0Ω	■ 490Ω	■ 3600Ω	530K	TP	.1Ω	¶	
V8	12AU7A	† 1meg	4.7meg	0Ω	0Ω	0Ω	† 3300Ω	22K	3300Ω	.1Ω
V9	6CM7	‡ 4800Ω	NC	0Ω	0Ω	.1Ω	‡ 1.6meg	• 2.3meg	• 1.2meg	• 1400Ω
V10	6SN7GTB	470K	† 7500Ω	1300Ω	• 120K	† 120K	1300Ω	0Ω	.1Ω	
V11	6DQ6A	NC	.1Ω	NC	† 8500Ω	470K	TP	0Ω	15Ω	TOP CAP ‡ 26Ω
V12	6AX4GT	TP	NC	¶	NC	† 0Ω	NC	0Ω	.1Ω	
V13	1B3GT			PINS 1 THRU 8 HAVE INFINITE RESISTANCE						TOP CAP ‡ 376Ω
V14	5U4GB	NC	¶	NC	29Ω	NC	27Ω	NC	¶	
V15	21CBP4A	0Ω	11K	PIN 6 ‡ 3300Ω	PIN 10 ‡ 3300Ω	PIN 11 • 300K	PIN 12 .1Ω			
V201	6BN4	0Ω	1meg	0Ω	.1Ω	■ 470Ω	0Ω	1meg		
V202	6CG8A	10K	■ 5600Ω	0Ω	0Ω	.1Ω	■ 1000Ω	■ 10K	0Ω	230K
V203	6AF4A	■ 820Ω	22K	.1Ω	.4Ω	1.2Ω	22K	■ 820Ω		

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

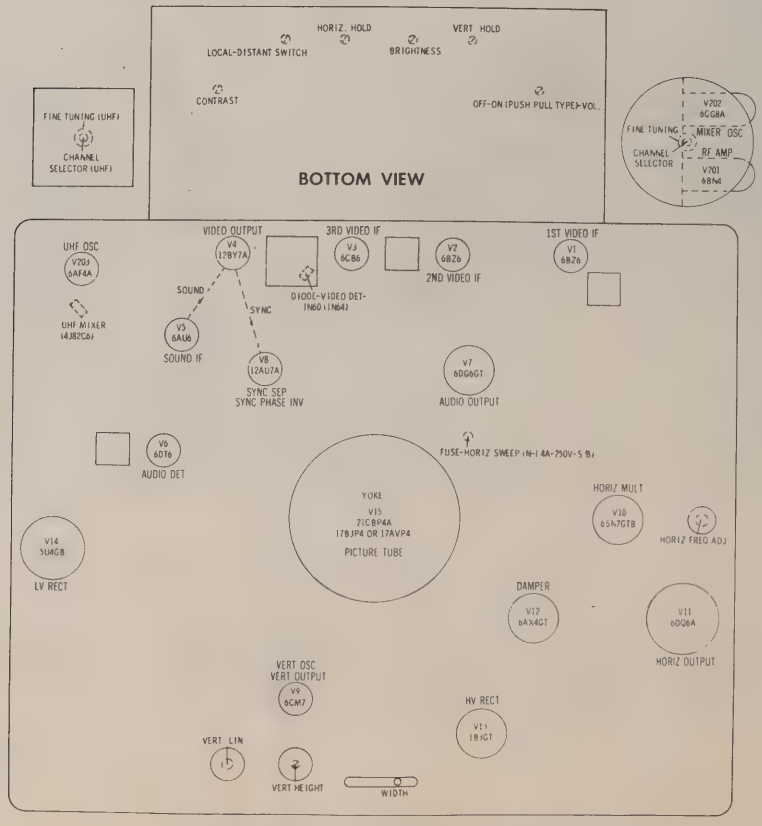
■ MEASURED FROM 135V SOURCE.

† MEASURED FROM 290V SOURCE.

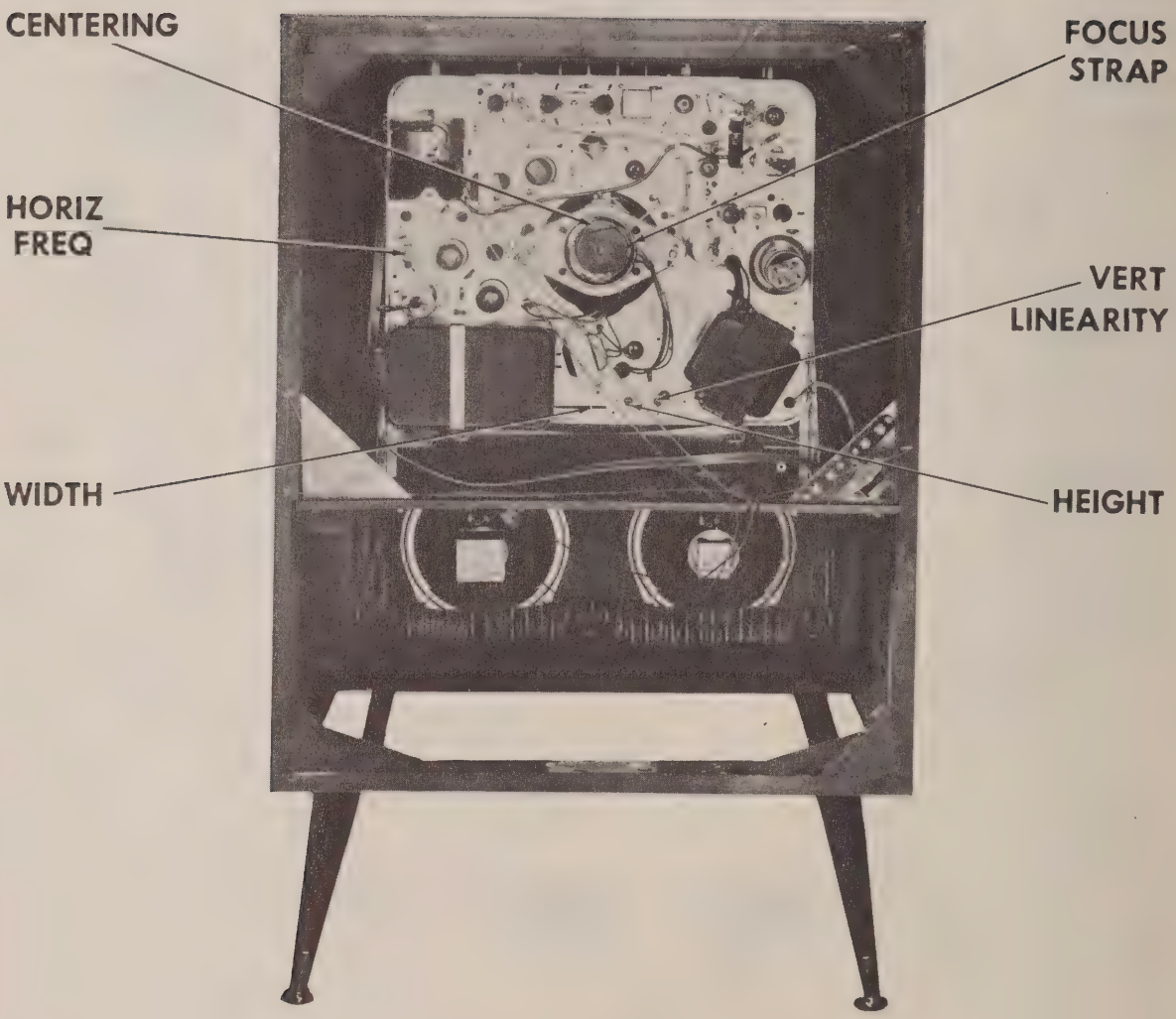
‡ MEASURED FROM PIN 3 OF V15.

NC NO CONNECTION.

TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Set the horizontal hold control to the center of its range. Adjust the horizontal frequency slug (B1) until the picture falls into synchronization. Keep turning B1 in the same direction until the picture just falls out of sync. Remove the direction of rotation until the picture just holds sync. Rotate the horizontal hold control to both extremes of rotation. The picture should either stay in sync at both positions or should fall out of sync by an equal number of bars at each end of the control. If either of these conditions fail to occur, repeat procedure. Adjust the width slug (B2) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

PHOTOFACT* Folder
*TRADE MARK
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 3 IN SET 378

HOFFMAN MODELS B3351, U, M3351, U, SP3351, U (Ch. 422, U)

Hoffman Models B3291, B3291U, M3281, M3281U, P3281 and P3281U (Ch. 421, U) were covered in Photofact Folder 3 - Set 378.

Models B3351, B3351U, M3351, M3351U, SP3351 and SP3351U (Ch. 422, U) are electrically identical to the models covered, except for the following changes.

COMPONENT CHANGES

R8 (Area Control) is increased from 50K to 100K (Part #800032).

R4 (Vert. Hold) is increased from 1.25meg to 1.5meg (Part #800029).

The part number for R2A, B (Bass and Treble) is changed to 802019.

The part number for R1A, B, C (Contrast, Volume, AC and Spot Eliminator) is changed to 802020.

The part number for R3A, B (Brightness, TV-Phono) is changed to 800031.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 10 IN SET 340

MAGNAVOX CHASSIS AMP-148BB, CB

Magnavox Chassis AMP-148AA was covered in Photofact Folder 10 – Set 340.

Chassis AMP-148BB and AMP-184CB are electrically identical to the chassis covered except for the following changes.

COMPONENT CHANGES

R2 is decreased from 15K to 10K.

A 2200Ω ½ watt resistor is added in parallel with C12.

C4 is increased from .015mfd to .033mfd.

C6 is increased from 220mmf to 680mmf.

C12 is decreased from .068mfd to .047mfd.

C11 is increased from .015mfd to .033 mfd.

AMP-148CB

SPEAKER EXTENSION CIRCUIT ADDED

Provision for extension speakers has been provided on Chassis AMP-148CB. A partial schematic showing the new circuit is given on the reverse side.

(Continued on Reverse Side)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 6 IN SET 343

MAGNAVOX CHASSIS AMP-151BB, CB

Magnavox Chassis AMP-151AA was covered in Photofact Folder 6 - Set 343.

Chassis AMP-151BB and AMP-151CB are electrically identical to the chassis covered, except for the following changes.

POWER SUPPLY CHANGED

The power supply for Chassis AMP-151BB and AMP-151CB has been changed. Partial schematics showing the new circuits are given on the reverse side.

(Continued on Reverse Side)

PRODUCTION CHANGES
BULLETIN 208

PRODUCTION CHANGES
BULLETIN 208

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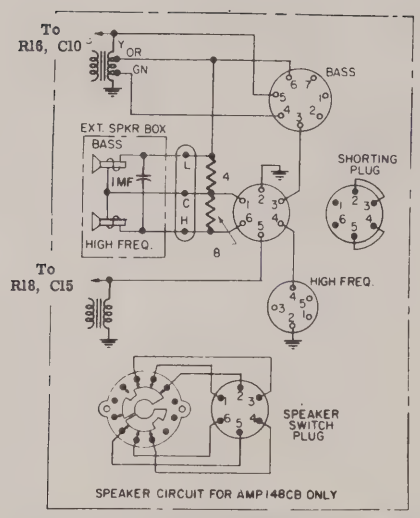
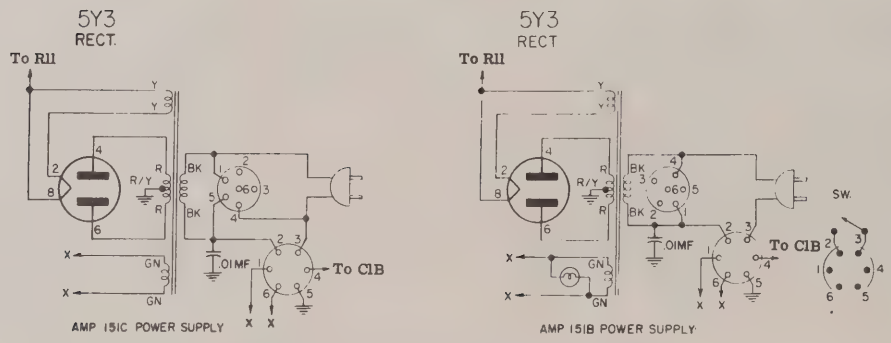
SET 398 FOLDER 5



SCHEMATIC COURTESY THE MAGNAVOX COMPANY



SCHEMATIC COURTESY THE MAGNAVOX COMPANY

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 10 IN SET 357

TRUETONE MODEL 2D2720C

Truetone Models 2D2720A and 2D2720B were covered in Photofact Folder 10 - Set 357.

Model 2D2720C is electrically identical to the models covered except for the following changes.

COMPONENT CHANGE

A 2.2mmf @ 500V ceramic disc capacitor is added from pin 1 of V3 to ground.

AUDIO OUTPUT CIRCUIT CHANGED

The audio output circuit for Model 2D2720C has been changed. V9 (Audio Output) is changed from 12BK5 to 5AQ5. A partial schematic showing the new circuit is given in Fig. 1.

SYNC COUPLING CIRCUIT CHANGED

The sync coupling circuit for Model 2D2720C has been changed from a couplate to individual components. A partial schematic showing the new circuit is given in Fig. 2.

HORIZONTAL AFC & OSC CIRCUIT CHANGED

V11 (Horizontal AFC & Osc.) is changed from 7AU7 to 6CG7. A partial schematic schematic the new circuit is given in Fig. 3.

NEW VHF TUNER

Model 2D2720C uses a new VHF tuner. A partial schematic showing the new tuner is given in Fig. 4.

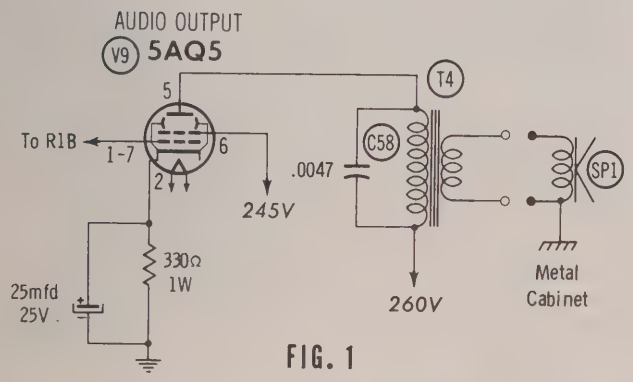


FIG. 1

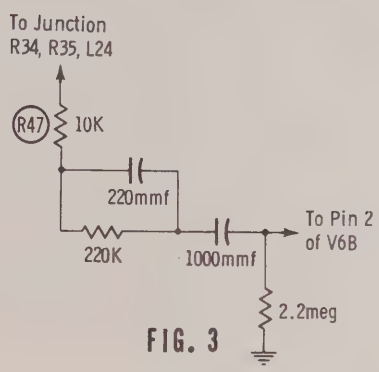


FIG. 3

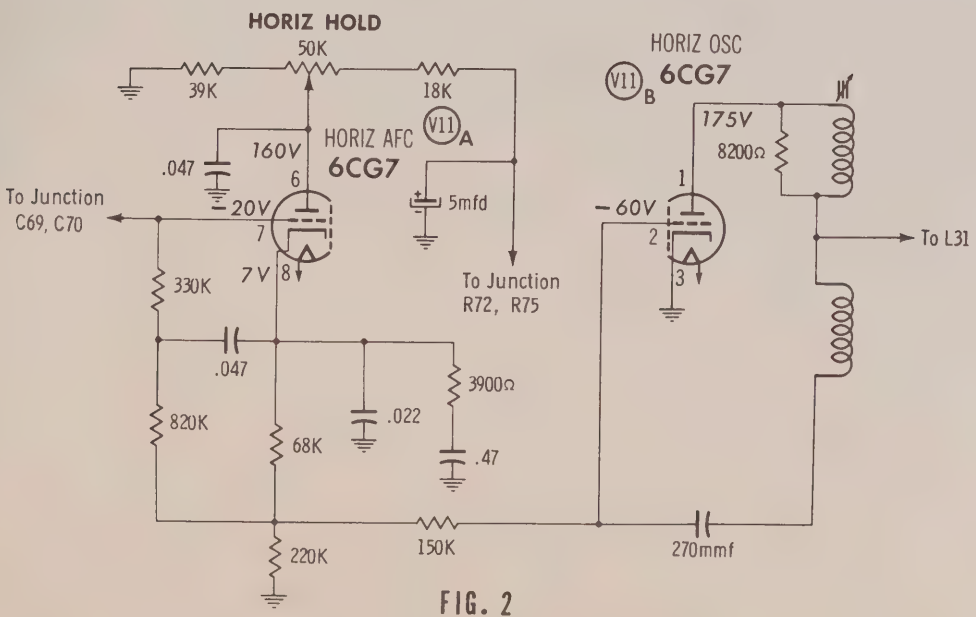
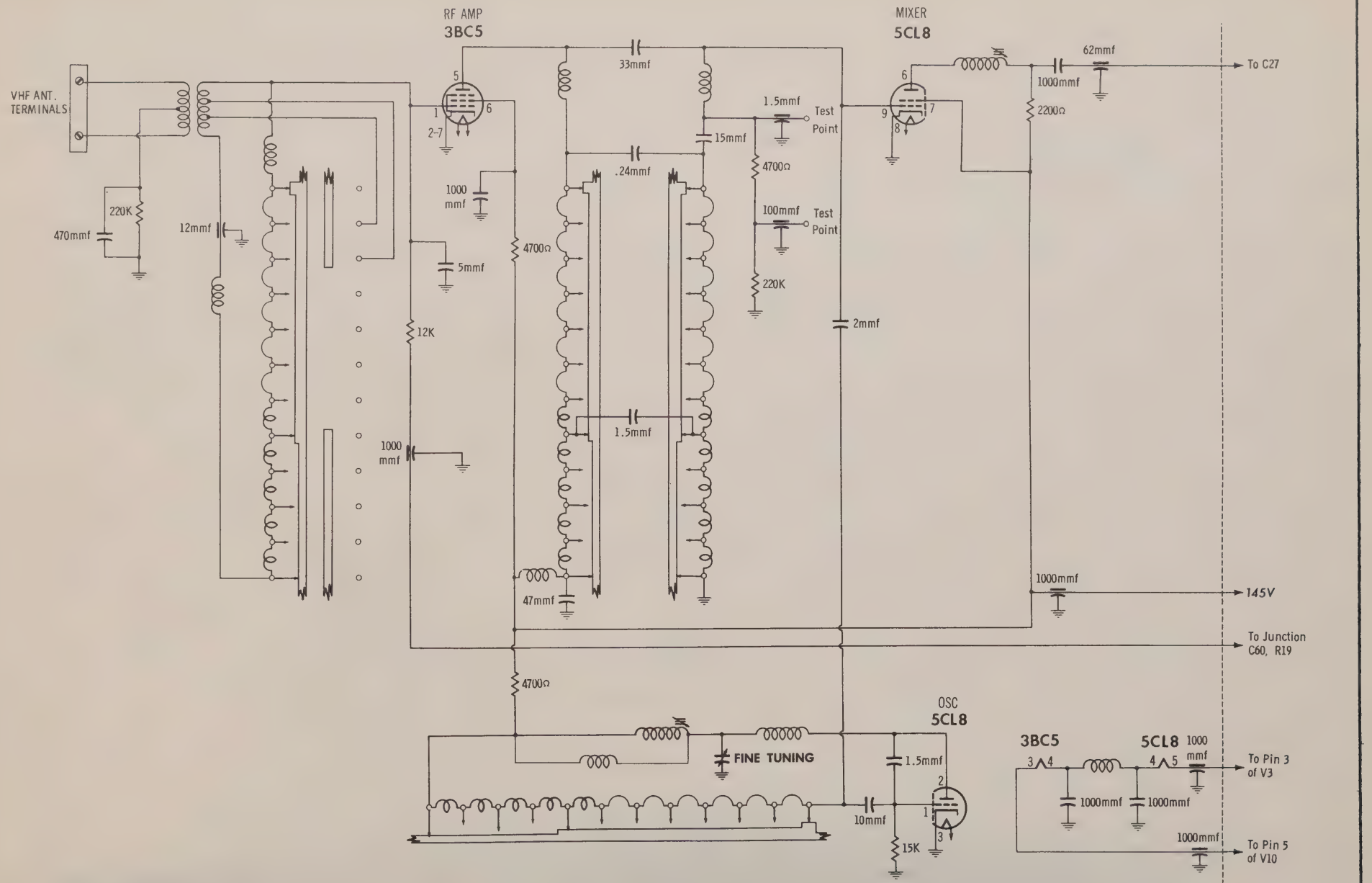


FIG. 2

FOLDER 5



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

FIG. 4

PHOTOFACT* Folder

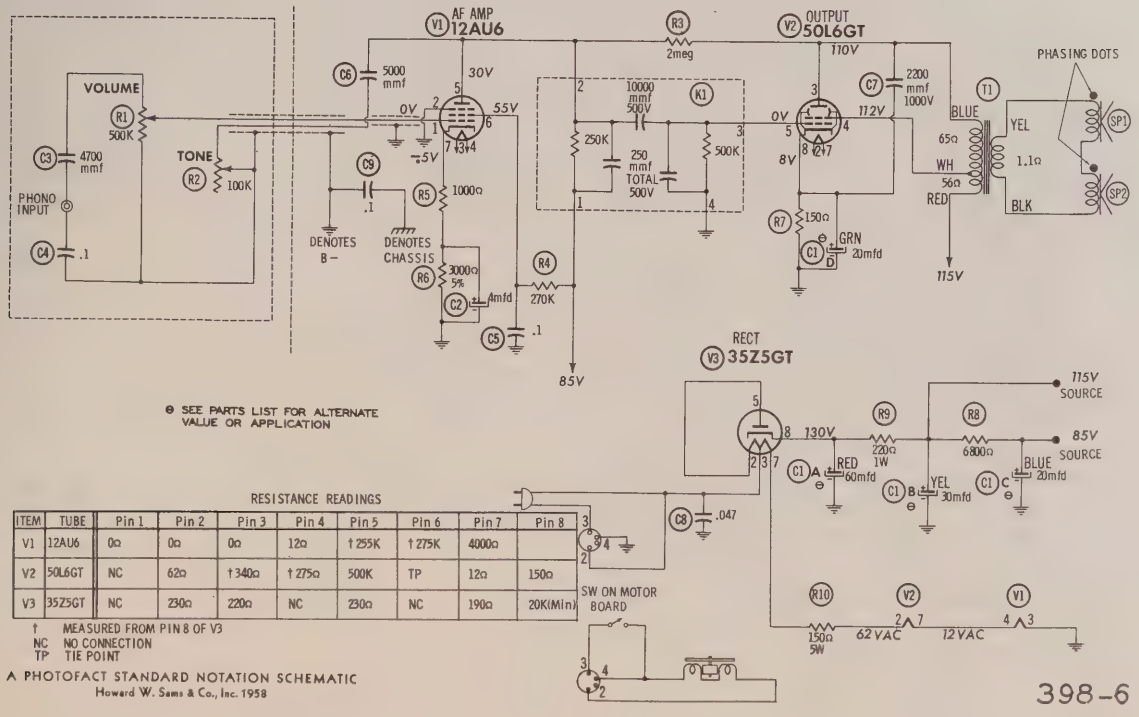
EIA ELECTRONIC INDUSTRIES ASSOCIATION MEMBER

ADMIRAL MODELS
HT2236, HT2237 (Ch. 3K1)

ADMIRAL MODELS
HT2236, HT2237 (Ch. 3K1)

TRADE NAME	Admiral Models HT2236, HT2237 (Ch. 3K1)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AU6 AF Amplifier, 50L6GT Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .27 Amp. @ 117 Volts (26 Watts Without Motor)

RECORD CHANGER—ADMIRAL MODEL RC636 OR RC636-1



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12AU6	0Ω	0Ω	0Ω	12Ω	†255K	†275K	4000Ω	
V2	50L6GT	NC	62Ω	†340Ω	†275Ω	500K	TP	12Ω	150Ω
V3	35Z5GT	NC	230Ω	220Ω	NC	230Ω	NC	190Ω	20K(Min)

† MEASURED FROM PIN 8 OF V3
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

398-6

ADMIRAL MODELS
HT2236, HT2237 (Ch. 3K1)

SET 398 FOLDER 6

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PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AU6	
V2	Output	50L6GT	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	35Z5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	67A37-1 ①		BBRQ53215C	WQ230	CDBQ-1001	FMT-323	R2471 *
B	30	150				TC26		MTD-1520	
C	20	150							
D	20	25							
C2	4	25	67A4-3	SRE25V5	BBR4-50	TC30	TD-4-25	MT-0504	TVA-1203

① In some versions C1A is 30mfd (C1 Part #67A14-3). * Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	4700		65D10-71	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C4	.1	400	64B1-20	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C5	.1	400	64B1-20	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C6	5000		65D10-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	2200	1000	65D10-42	HVD-15-2200	DD30-222	BYA10D22	HD15-2200	DC30222	5GA-D22	
C8	.047	400	65A13-5	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C9	.1	400	64B1-20	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	75C1-86	B-59	A47-500K-S	Q11-133	U50	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	100K	½	75C1-88	B-40	A47-100K-S	Q11-128	U41	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R3	2meg		60B7-205	
R4	270K		60B8-274	
R5	1000Ω		60B8-102	
R6	3000Ω 5%		60B7-302	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R7	150Ω		60B8-151	
R8	6800Ω		60B8-682	
R9	220Ω	1	60B14-221	
R10	150Ω	5	61A16-5	

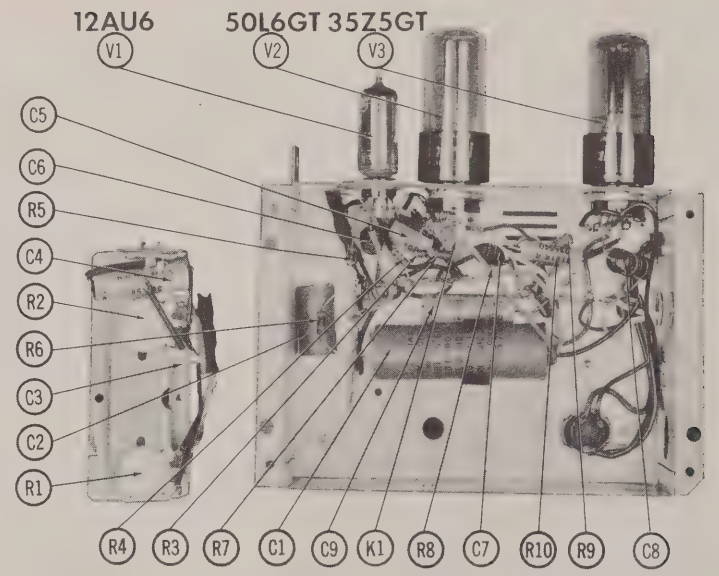
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2100Ω CT	6-8Ω	79C45-5	Z1007		AU-604				

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ADMIRAL PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	78B89-12 ①	5AIR ①	① Connect in series and phase.
SP2	5"	PM	3-4Ω	78B89-13 ①	5AIR ①	

CHASSIS—BOTTOM VIEW



COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	10000mmf, 250mmf, 250K, 500K	63A5-6	Aerovox PA-112-4 Centralab PC-81 Cornell-Dubilier 113TM2 Erie 1404-02 Sprague T-2

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ADMIRAL PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	409B21-2 ①	55T or 81-TB	GD-J	56	PT-1	① Includes needles

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ADMIRAL PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	98B15-62	* JP-35 or † JPS-35 or †♦ JPS-35SD or ♦ JPS-35D	* W35TPA or † W35TPS or †♦ W35DS or ♦ W35TPD	* Metal † Jewel ♦ Diamond

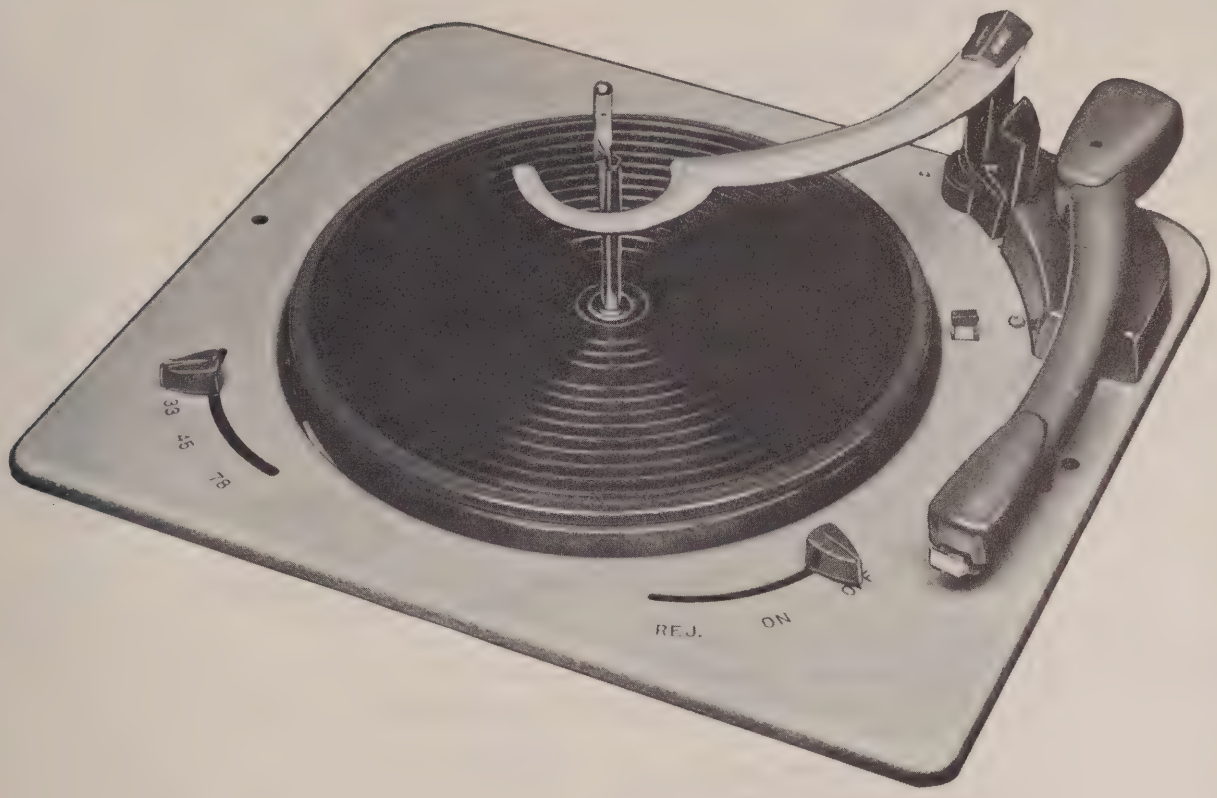
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

ADMIRAL MODELS RC607-1, -1A, -1B, -4, -4A, -6A, RC637-1, -1B, -1E, -2, -2A, -2B, RC647-2D, -3B, -3C, -3F

ADMIRAL MODELS RC607-1, -1A, -1B, -4, -4A, -6A, RC637-1, -1B, -1E, -2, -2A, -2B, RC647-2D, -3B, -3C, -3F



ADMIRAL MODELS RC607-1, -1A, -1B, -4, -4A, -6A, RC637-1, -1B, -1E, -2, -2A, -2B, RC647-2D, -3B, -3C, -3F

GENERAL INFORMATION

The Admiral Record Changers are designed to play 78, 45, 33-1/3 and 16-2/3 rpm records of standard commercial dimensions. Records up to 12 inches in diameter can be played.

Features of these changers include playing and automatically changing as many as twelve 10" records, or ten 12" records, or twelve 10" and 12" records of the same speed intermixed, or fourteen 7", 45 rpm records. In addition, the changers will play "Talking Book" records, recorded at 16-2/3 rpm.

These record changers will play and change automatically all commercially manufactured records and shutoff after playing the last record, with tone arm landing on tone arm rest.

Connect these changers only to an outlet supplying 60 cycle, 117volt, AC only.

Manufactured by:

Admiral Corporation
3800 Cortland Street
Chicago 47, Illinois

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HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

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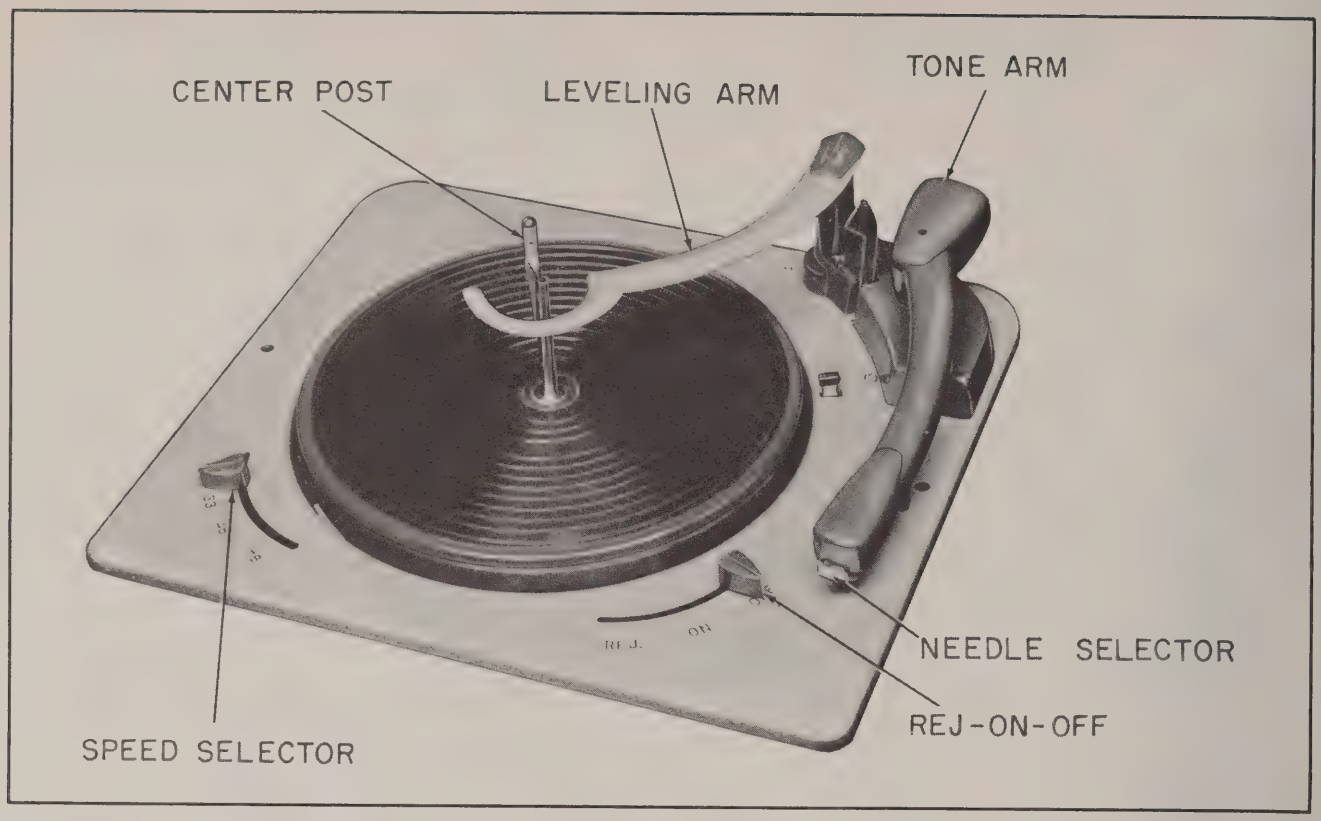


Fig. 1. Top View of RC607 Record Changer.

Changer model number appears on top of pan behind tone arm base. Serial number label on underside of pan is stamped with run number (Run 1K7, Run 2N7, etc.) corresponding to production changes. The run number is the first number (1, 2, etc.) appearing after the word "RUN".

DESCRIPTION OF MODELS

This manual contains service information for Models RC607-1, RC607-1A, RC607-1B, RC607-4, RC607-4A, RC607-6A, RC637-1, RC637-1B, RC637-1E, RC637-2, RC637-2A, RC637-2B, RC647-2D, RC647-3B, RC647-3C, and RC647-3F. These models are similar in basic design and construction. The major differences between these changers are the colors, the type motor and pickup cartridge used, and the changer wiring.

MODEL IDENTIFICATION CODE SYSTEM

Typical Number
RC607-4A

Changer Colors And Motor
Changer Wiring
Changer Pickup

Changer Colors And Motor

0 — Light gray hammer finish pan, dark gray trim, gray turntable with black rubber mat. Four-speed, two-pole motor, Part #407C24.

3 — Beige pan, coral and gold trim, gold escutcheon, coral turntable with coral rubber mat. Four-speed, two-pole motor, Part #407C27. Shielded pickup.

4 — Same as 3 except four-speed, four-pole motor, Part#407C27.

Changer Pickups

1 —	409B21 -2	Twin Sapphire
2 —	409B27 -2	Twin Sapphire
3 —	409B27	1 Mil Diamond 3 Mil Sapphire
4 —	409B26	2 Mil Sapphire
5 —	409B25	2 Mil Sapphire
6 —	409B24	Twin Sapphire

Changer Wiring

No Letter — Automatic changer and amplifier.
Basic Type — shutoff, 4 prong Alden plug, and 20" phono lead.

A — Automatic changer shutoff only, 2 prong Alden plug, and 20" phono lead.

B — Automatic changer shutoff only, 6' line cord, 40" phono lead.

C — Automatic changer shutoff only, 30" phono lead (100% shielded), terminal board shielded, 4 prong Alden plug, 2 prongs for motor and 1 prong for electric trip (110 volt AC operating voltage).

D — Terminal board shielded, 30" phono lead (100% shielded); otherwise, same as "A" type wiring.

E — Braid on phono lead, otherwise same as basic type wiring.

F — Terminal board shielded, 30" phono lead (100% shielded) otherwise same as basic type wiring.

Examples:

An RC607-4A is a gray changer with a black rubber mat using a 2-pole motor and a 409B26 cartridge, wired for changer shutoff only, and having a 20" phono lead.

An RC647-3C is a beige changer with a coral rubber mat using a 4-pole motor and a 409B27 cartridge (1 Mil Diamond, 3 Mil Sapphire), wired for changer shutoff only, having a 30" 100% shielded phono lead and shielded terminal board, 4-prong Alden plug, 2 prongs for motor and 2 prongs for electric trip (110 volt A C operating voltage).

INSTALLATION

Shipping devices holding the tone arm and the leveling arm in place must be removed from the record changer.

Two shipping screws hold down the record changer during shipment. These screws must be removed to permit the changer to float on three springs between the pan and the base. Two snap-in plug buttons are supplied with the set and should be inserted into the holes in the changer pan after the shipping screws are removed.

Remove the needle guard before the record changer is operated the first time. The needle guard and shipping screws should be saved and used whenever the set is reshipped.

The record changer must be level. An uneven floor or thick carpet under only the front of the cabinet may cause groove skipping on 45 or 33-1/3 rpm records.

SPECIFICATIONS

General Performances

These record changers will play and change automatically all commercially manufactured records and shut off after playing the last record, with tone arm landing on tone arm rest.

These changers are designed to play:

twelve 10" records, or
ten 12" records, or
twelve 10" and 12" records of the same speed intermixed, or
fourteen 7", 45 rpm records.

In addition, the changer will play "Talking Book" records, recorded at 16-2/3 rpm

The 45 rpm Spindle, Part #G400B645-2, or adaptors for center holes, can be used when playing 45 rpm records.

Manufacturing Specifications

Tone Arm:

Needle 8 to 10 grams for all records.

Set down as measured from center of center post.

7" records — 3-11/32 ± .040
10" records — 4-25/32± .050
12" records — 5-25/32± .050

OPERATING INSTRUCTIONS

Setting The Speed Selector Knob

Correct turntable speed may be selected by sliding the speed selector pointer to the position indicated for 16, 33, 45, or 78 rpm

When the record changer is not in use, the speed selector pointer should be placed in the neutral (N) position to prevent flat spots from developing on the idler wheel tire.

Loading And Starting

Remove needle guard which protects phonograph needle during shipment. Select a stack of records of the same speed. Grasp the leveling arm at the shaft

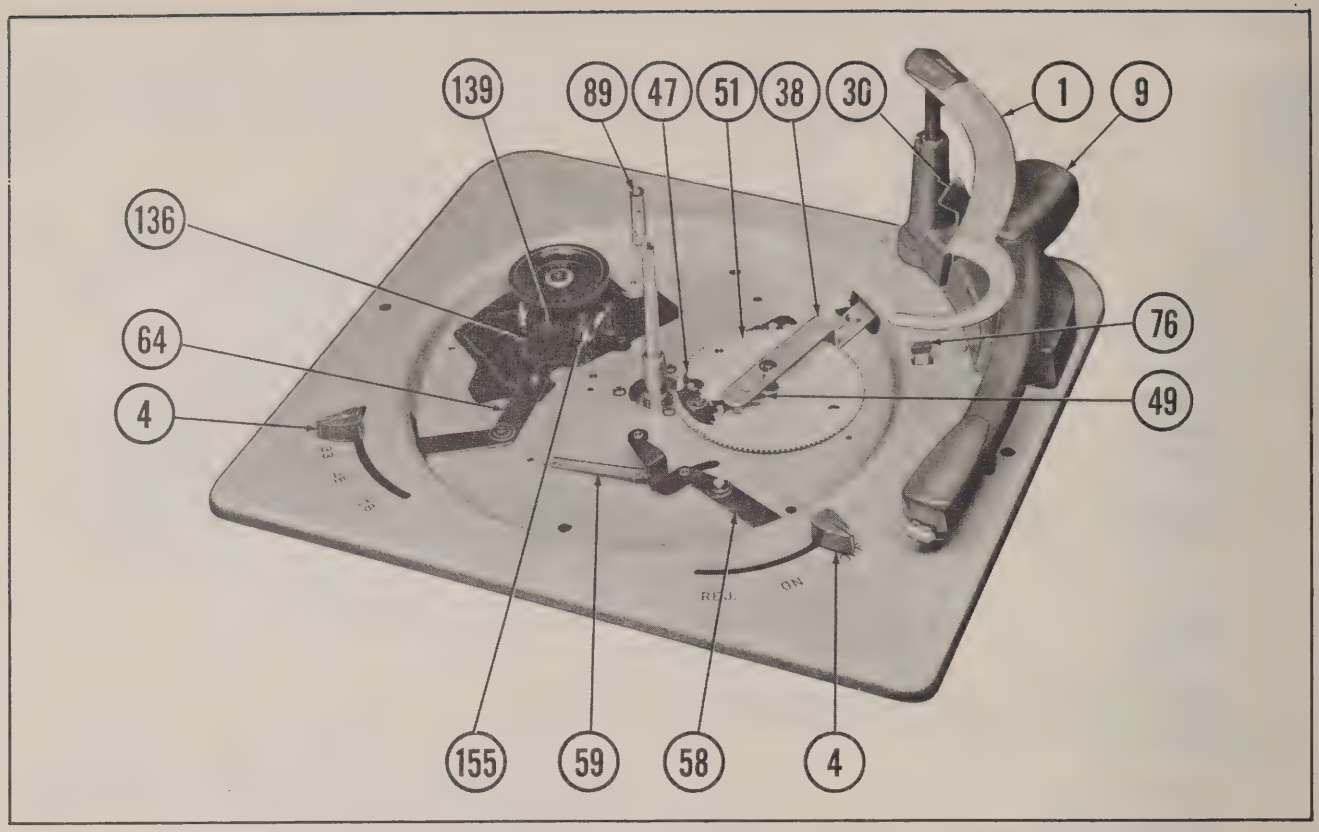


Fig. 2. Top View of RC607 With Turntable Removed, Changer Out of Cycle.

end (Lift Here) and lift it to clear the top of the center post. Swing the leveling arm toward the tone arm where it is out of the way of records.

Place the stack of records on the centerpost. Then, swing the leveling arm back over the centerpost and lower it on the record stack.

When these record changers are operated in radio-phonograph or television combinations, controls on the radio or television control panel must be used.

To start and operate the record changer, set the selector knob on the radio or television control panel to the "Phono" position. Turn the "Off-Volume" knob to the right (clockwise). Slide the reject pointer to the "Rej." position momentarily and let it return to the "On" position. As the tone arm sets down on the first record, adjust the "Volume" knob for the desired sound level.

The record push-off is built into the centerpost and operates automatically during the change cycle.

The tone arm set-down point is automatically selected during the change cycle immediately after the first record drops to the turntable. The set-down index finger at the edge of the turntable rises momentarily to determine the correct set-down position for the tone arm.

Rejecting A Record

If the record changer will not trip into change cycle at the end of a record, or if you wish to stop playing a record and start playing the next one, merely slide the reject pointer to the "Rej." position momentarily.

Stopping And Unloading

Do not switch off the record changer or handle the tone arm during the change cycle. These record changers may be stopped any time a record is playing by sliding the reject pointer to the "Off" position. The tone arm may be carefully lifted off the playing surface of the record and placed on the tone arm rest.

These record changers will automatically switch off power to the turntable motor (and amplifier) after the last record has played and the tone arm will be returned to the tone arm rest.

Grasp the leveling arm at the shaft end and lift it to clear the top of the centerpost. Swing the leveling arm toward the tone arm where it is out of the way of records. Lift the stack of records off the centerpost.

When following this change cycle, keep in mind that a velocity-type trip is used, which depends upon a rapid movement of the tone arm toward the centerpost. Note that the Push-Off, Trip, and Set-Down mechanisms function independently.

If at all possible, observe the change cycle of a record changer which is operating properly. It is a good idea to rotate the turntable by hand and repeat the change cycle until the function of each part is understood. Since the reject mechanism is located on the top side of the changer pan underneath the turntable, it is impossible to view this mechanism during normal operation of the changer. However, a geared hub (normally riveted to the turntable) is available as a separate replacement part. (Part Number 404A43). To observe the action of the reject mechanism, remove the turntable, insert the geared hub, and rotate the hub clockwise by hand.

The changer operates as follows: The turntable is driven by the motor idler wheel, riding against its inside rim. The speed of the turntable is determined by the diameter of the shaft driving the idler wheel rubber tire.

The changer mechanism is driven during its change cycle by the drive gear (51), which in turn is driven by the gear hub of the turntable. During normal record play, the "dead spot" on the drive gear is held next to the turntable hub by the gear indexing arm (54) and spring (74).

Velocity Trip

This changer employs a velocity trip, consisting primarily of two parts, the trip motion arm (49), and the gear engagement pawl (47). These parts are mounted near the "dead spot" on drive gear (51). See Fig. 4.

During normal record play, the trip slider (38) is moved slowly by the stud on the tone arm control lever (84) which moves with the tone arm. The stud on the trip slider (38) rides against the trip motion arm (49), moving it very slightly. Since the gear engagement pawl (47) is held against the trip motion arm (49) by the trip friction washer (46), the gear engagement pawl (47) is also moved slightly toward the turntable hub. Since this movement is only slight, the vertical catch on the gear engagement pawl (47) is just touched and "kicked away" by the lug on the turntable until the gear engagement pawl is moved in rapidly enough to position in front of the lug for the next turntable cycle.

This rapid movement only occurs when the trip slider (38) is moved rapidly, by the tone arm, as the needle enters the trip grooves of the record. The gear engagement pawl (47) then moves in front of and engages the lug on the turntable hub. This causes the drive gear (51) to be rotated far enough so that the teeth on the drive gear will engage the teeth on the turntable hub, starting the change cycle. See Fig. 4.

The change cycle can also be started by sliding the reject pointer to the "Rej." position momentarily. The stud on the end of the reject arm (58) moves the gear engagement pawl (47) into position to engage the lug on the turntable hub.

As drive gear (51) begins to rotate, the drive eccentric (115) also rotates, since both parts are mounted on the same shaft. See Fig. 3. As the drive eccentric rotates clockwise, the drive link (112) pivots the control plate (108). As the control plate pivots, the inclined cutout moves from beneath the tone arm lift rod (85), raising the tone arm from the record. The safety arm (110) travels with the control plate (108). The stud on the safety arm engages the

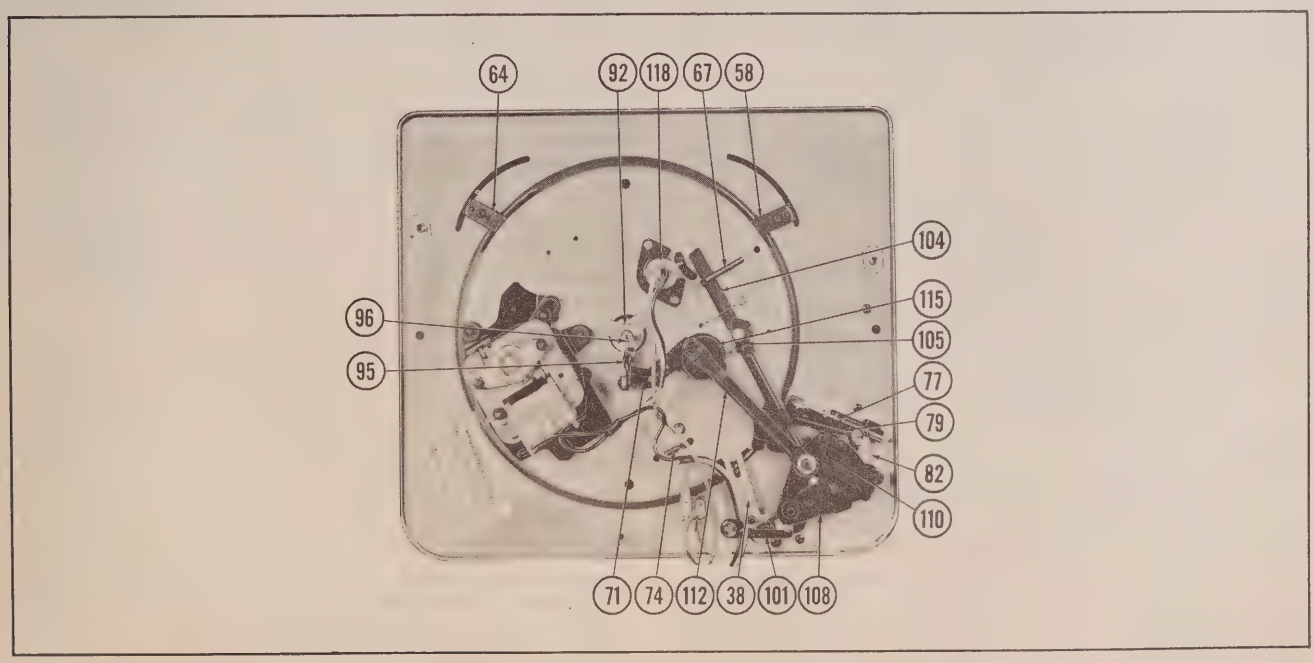


Fig. 3. Bottom View of RC607, Changer Out of Cycle.

tone arm control lever (84) and moves the tone arm away from the centerpost.

Automatic Phono Trip

The Trip Coil (120) is used on record changer Model RC647-3C. This changer is used on Son-r Television-Radio-Phonograph combinations. Pressing the push button on the Son-r Remote Tuning Unit with the selector knob in the "Chan Rej" position momentarily energizes the trip coil (120). The temporary magnetic field created causes an attractive force to be applied to the gear engagement pawl (47). This force is of the proper direction, magnitude, and duration to cause the gear engagement pawl (47) to move far enough to engage the lug on the turntable hub, thus causing the changer to trip into its change cycle.

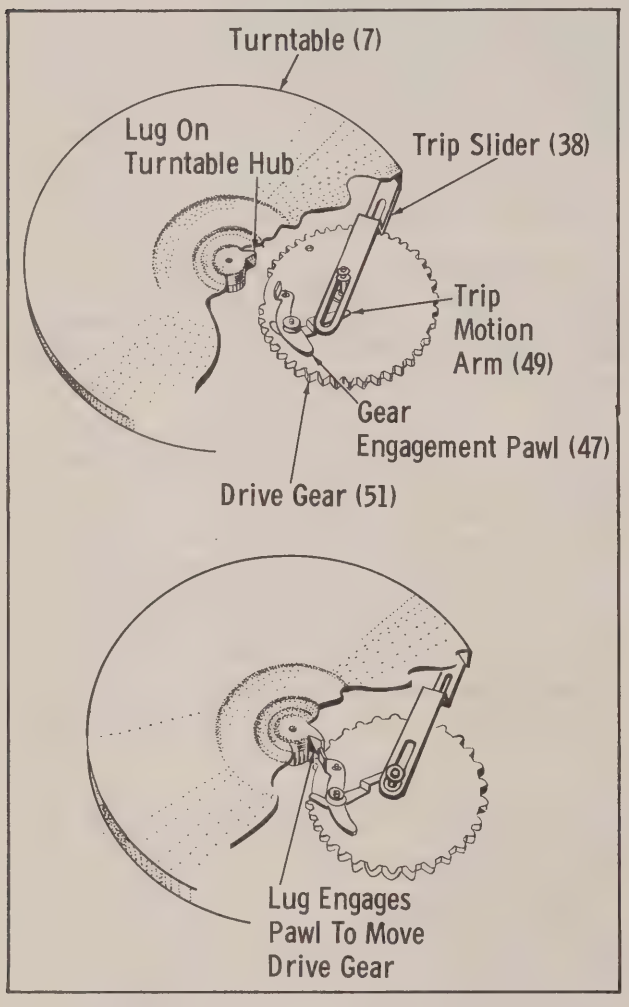


Fig. 4. Position of Drive Gear Out of Cycle And at Start of Changer Cycle.

Push-Off

When the tone arm is clear of the turntable, the roller on the drive eccentric (115) engages the push-off link (71). The push-off link moves the push-off lever (95), which in turn engages the safety spring (96) with the push-off adjustment nut (98) on the end of the push-off shaft in the centerpost. As the push-off link (71) is moved by the drive eccentric, the push-off lever (95) causes the safety spring (96) to move the push-off shaft up into the centerpost. The push-off shaft engages the ejector and pushes it up and out at the shelf of the centerpost. See Fig. 8.

As the ejector moves up, it engages the center hole of the record at the bottom of the stack on the shelf. As the ejector moves out of the centerpost, the record moves with it until the center hole is clear of the shelf of the centerpost. The record drops down the centerpost to the turntable. The balance of the stack of records is held on the shelf by the centerpost slide above the ejector.

As the drive eccentric starts into the second half of the change cycle, the push-off return spring (97) returns the safety spring (96), push-off lever (95), and push-off link (71) to proper position and permits the push-off ejector to return into position for push-off for the next record on the shelf of the centerpost.

Set-Down

After push-off and during the second half of the change cycle, the tone arm is returned to the edge of the record on the turntable. The tone arm is mounted to the tone arm control lever (84). The set-down engagement spring (86) presses the tone arm control lever against the cork friction washer (83). As the set-down arm return spring (79) draws the set-down arm (82) toward the centerpost, the cork friction washer returns the tone arm control lever with the set-down arm.

As the control plate (108) is returned by drive link (112), the inclined cut-out moves beneath the tone arm lift rod (85). As the tone arm lift rod descends into the inclined cut-out, the tone arm is lowered to the record.

The set-down index (77) automatically determines the correct set-down position of the tone arm for each record size. An index pin on the set-down arm (82) engages with the set-down index (77). As the long stud on the safety arm (110) moves the set-down arm (82), the index pin on the set-down arm releases the set-down index and permits it to pivot of its own weight and lift the index finger to the edge of the turntable.

A 7-inch record cannot obstruct the index finger. Therefore, the set-down index will pivot its full distance to the position which will permit the index pin on the set-down arm to enter the proper index slot for 7-inch set-down. The set-down arm return spring (79) draws the set-down arm (82) toward the centerpost and the index pin on the set-down arm travels in to the end of the index slot. Since the index pin is held in the index slot against moving further toward the centerpost, the index slot will determine where set-down occurs.

A 10-inch record will extend past the edge of the turntable far enough for the index finger cap (76) to momentarily "feel" the edge of the record. The index finger cannot rise as high as it was when no record obstructed its rise, thus the set-down index is positioned to permit the index pin on the set-down arm (82) to enter the index slot for 10-inch set-down.

The 12-inch set-down trigger (30) "feels" the presence of a 12-inch record. When a 12-inch record drops down the centerpost, it momentarily forces the 12-inch set-down trigger (30) towards the back corner of the record changer. This releases the 12-inch set-down slide (36) which is pulled by its spring (37) until it moves into a slot on the set-down index (77). With the set-down index (77) held by the 12-inch set-down slide (36), the index pin on the set-down arm will enter the slot for 12-inch set-down.

At the beginning of each change cycle, the 12-inch set-down slide (36) is reset into position to be triggered by the 12-inch set-down trigger (30), by means of the pin on the safety arm and stud assembly (110). This pin actuates a roller located on the underside of the pan that is attached to the 12-inch set-down slide (36).

Intermix of 10-inch and 12-inch records is thus accomplished, since the index finger's rubber cap (76) will always "feel" the equivalent of a 10-inch record, and the 12-inch set-down trigger (30) will correct this action for every 12-inch record that slides down the centerpost.

Automatic Shut-Off

After the last record of the stack on the shelf has been ejected to the turntable, the leveling arm (1) drops about 3/16 of an inch beneath the shelf. The bottom end of the record clamp shaft extends beneath the changer pan and will lower the shut-off delay stop (101). The shut-off link control arm on the shut-off link (104) is then permitted to pivot with the shut-off arm spring (107) fastened at its other end to the control plate (108). The shut-off link control arm will draw the shut-off link and engage its cam that positions the shut-off link in line with the stud on the reject arm (58).

As the shut-off link (104) is drawn toward the control plate (108), the stop on the shut-off link moves into the path of the stud on the tone arm control lever (84).

When the control plate (108) begins to return in the second half of the change cycle, a stud on the control plate moves the shut-off link (104) to snap off the phonograph motor switch (118) and return the "Off-On-Rej." pointer to "Off".

The tone arm control lever (84) is held by the tone arm stop on the shut-off link (104) while the control plate (108) is going through the second half of the change cycle; the tone arm is held suspended above the tone arm rest (32). As the inclined cutout moves under the tone arm lift rod (85), the tone arm is lowered onto the tone arm rest.

ADJUSTMENTS

When making the following adjustments, keep in mind that the Push-Off, Trip, and Set-Down mechanisms function independently.

Velocity Trip Mechanism

These record changers use a velocity-type trip, which depends upon a rapid movement of the tone arm toward the centerpost in any area between 2-7/8" to 7/8" from the center of the record. This trip requires no adjustment. However, in order for the changer to trip properly, there must be sufficient friction between the trip motion arm (49) and the gear engagement pawl (47). Friction may be increased by placing a very slight amount of a lubricant such as Cosmolube #1 (See "Lubrication" on Page 11) on the fibre washer (48). If lubricant does not correct improper trip action, replacement of the gear engagement pawl and trip motion arm assembly, Part Number G400A588 is recommended. This assembly is adjusted at the factory with the precise amount of friction required for correct trip action.

Set-Down Adjustment

The set-down adjustment may be made while the changer is in its compartment or cabinet. Adjustment of the set-down point is made by adjusting the set-down adjusting screw (16). The tone arm will automatically set down properly on 7-inch or 12-inch records if the set-down adjustment is made properly on a 10-inch record. The set-down adjustment screw is accessible through the hole in the left side of the tone arm. Turning this screw out (counterclockwise) moves the set-down point of the tone arm closer to the centerpost, and turning this screw in (clockwise) moves it away from the centerpost.

Be sure the record changer is level. Make the set-down adjustment as follows:

1. Place a 10-inch record on the turntable.

2. Slide the reject pointer to the "Rej." position momentarily and let it return to "On." The changer will begin its automatic cycle. Slide the reject pointer to the "Off" position so that the turntable will stop after set-down has begun, but before the needle has touched the record.

NOTE: This step may be more easily performed while the changer is operated at 33 rpm.

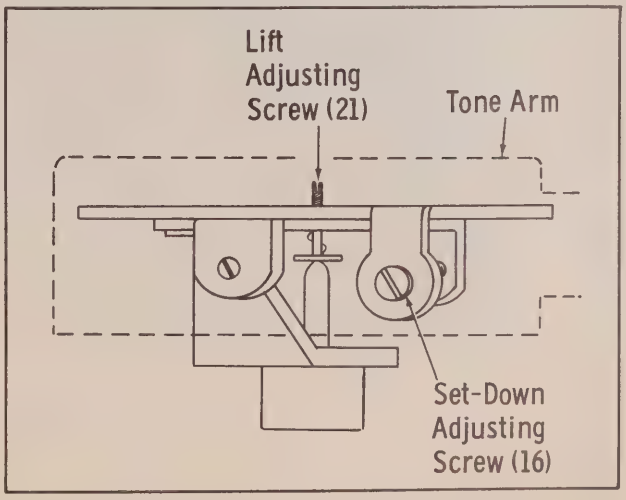


Fig. 5. Set-Down And Lift Adjustment.

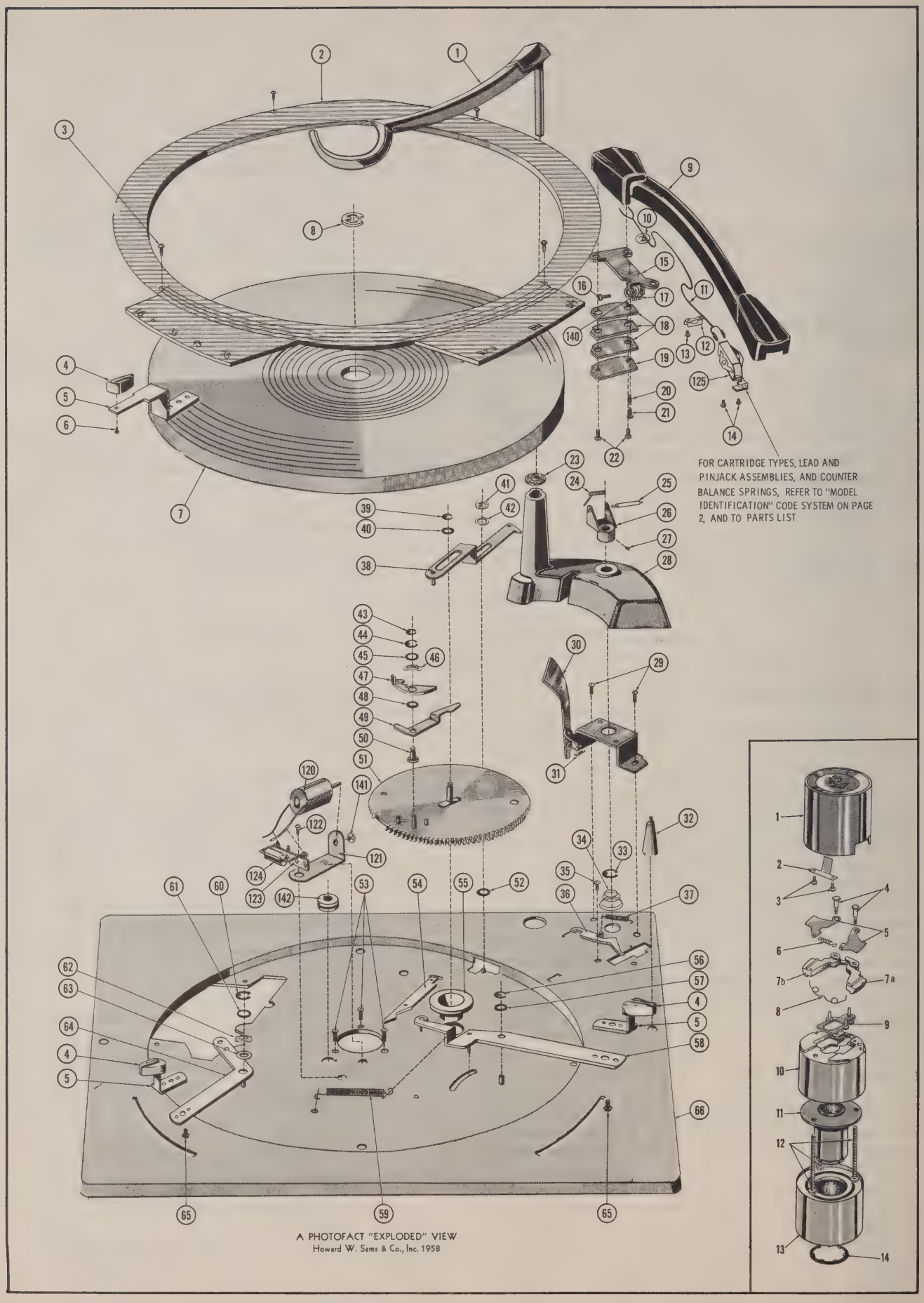

FOR CARTRIDGE TYPES, LEAD AND PINJACK ASSEMBLIES, AND COUNTER BALANCE SPRINGS, REFER TO "MODEL IDENTIFICATION" CODE SYSTEM ON PAGE 2, AND TO PARTS LIST
A PHOTOFACT "EXPLODED" VIEW
Howard W. Sams & Co., Inc. 1958

Fig. 6A. Exploded View of Parts Above Changer Pan.

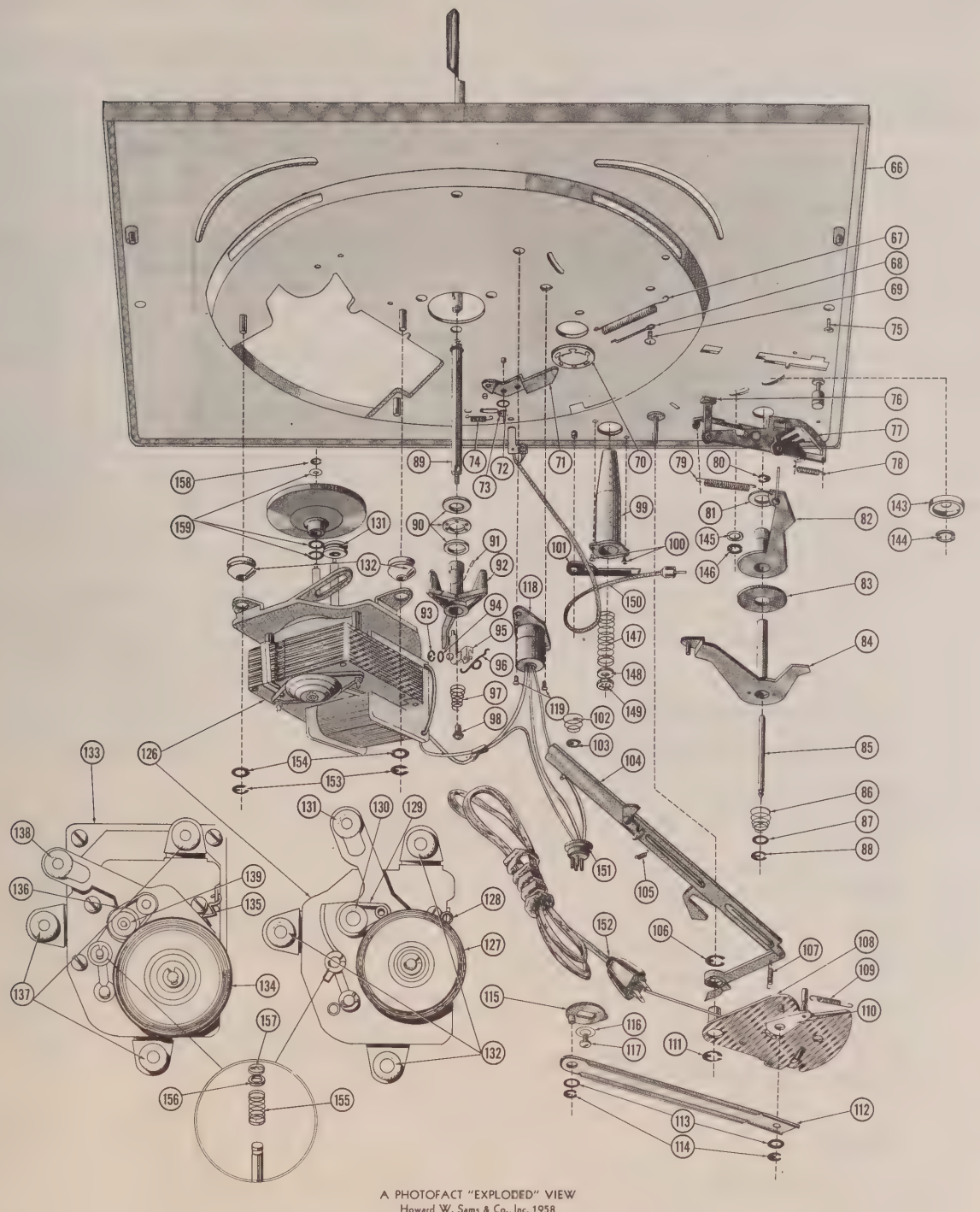


Fig. 6B. Exploded View of Parts Below Changer Pan.

3. Place a ruler against the centerpost and measure the distance between the near side of the centerpost and the needle. This distance should be between 4-10/16" and 4-11/16".

4. When the 10-inch adjustment is correct, the needle should set-down between 5-16/32" and 5-22/32" from the near side of the centerpost on 12-inch records, and between 3-1/4" to 3-5/32" on 7-inch records.

5. Check the set-down point with each size of record. "Touch-up" the set-down adjustment until the set-down has been optimized for all record sizes.

Adjusting The Tone Arm Lift

Be sure the record changer is level. The tone arm lift adjustment may be made while the changer is in its compartment or cabinet. The tone arm lift adjusting screw (21) is accessible through a hole on the top of the tone arm at the tone arm base. If the tone arm lift is too great, that is, the tone arm touches the record at the bottom of the stack on the shelf of the centerpost, turn the lift adjusting screw counterclockwise. If the tone arm lift is not great enough to pass above a stack of 12 standard 10", 78rpm. records on the turntable, turn the lift adjusting screw clockwise.

When the changer is in change cycle, the top surface of the tone arm head must be approximately 1/8 to 1/4 inch beneath the bottom record resting on the center post shelf.

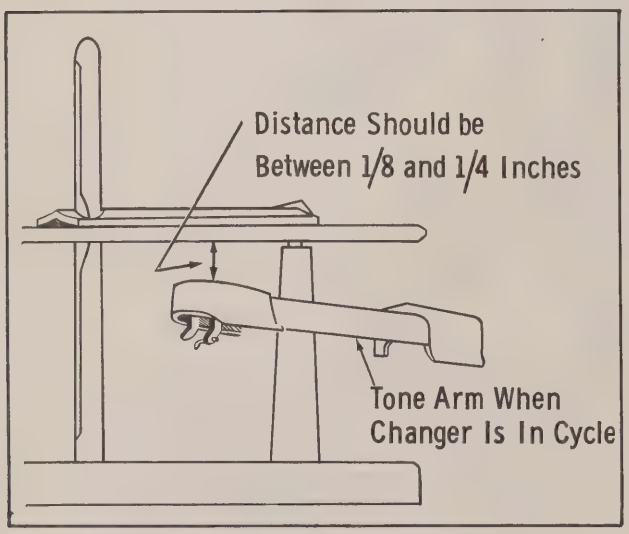


Fig. 7. Checking Tone Arm Lift.

Push-Off Adjustment

The push-off adjustment must be checked whenever the centerpost has been removed or changed. Record push-off is accomplished by means of an ejector and push-off shaft built into the centerpost. During the change cycle, the ejector and push-off shaft are moved by the safety spring (96). If ejector travel is not sufficient for record push-off, adjustment may be required.

Ejector travel is adjusted by the hexagonal adjustment nut (98). With proper push-off adjustment, the ejector should extend just slightly beyond the edge of the shelf on the centerpost. See Fig. 8.

Additional travel must be allowed for the push-off shaft and ejector after the push-off lever (95) has moved its full distance.

To adjust the push-off, proceed as follows:

1. Rotate the turntable by hand. Slide the reject pointer to "Rej." position and let it return to "On".

2. Continue rotating turntable slowly until the roller on the drive eccentric (115) engages the push-off link (71). Rotate the turntable until the roller has moved the link its full distance. The push-off lever (95) is now extended its maximum travel.

3. Check the position of the ejector at the shelf of the centerpost. The ejector should extend just beyond the edge of the shelf. See Fig. 8. If the ejector does not extend beyond the edge of the shelf, turn the push-off adjustment nut (98) counterclockwise to increase the amount of push-off. Use a 1/4" open-end wrench for this adjustment.

CAUTION: The push-off adjustment nut has been specially slotted to stay tight on the push-off shaft after adjustment is made. Do not turn the nut all the way on the push-off shaft; this will spread the slots and allow the nut to turn out of adjustment.

4. Press the hexagonal adjustment nut (97) to check for additional travel before the push-off shaft stops. The ejector should move out past the shelf slightly more than necessary for push-off before it stops.

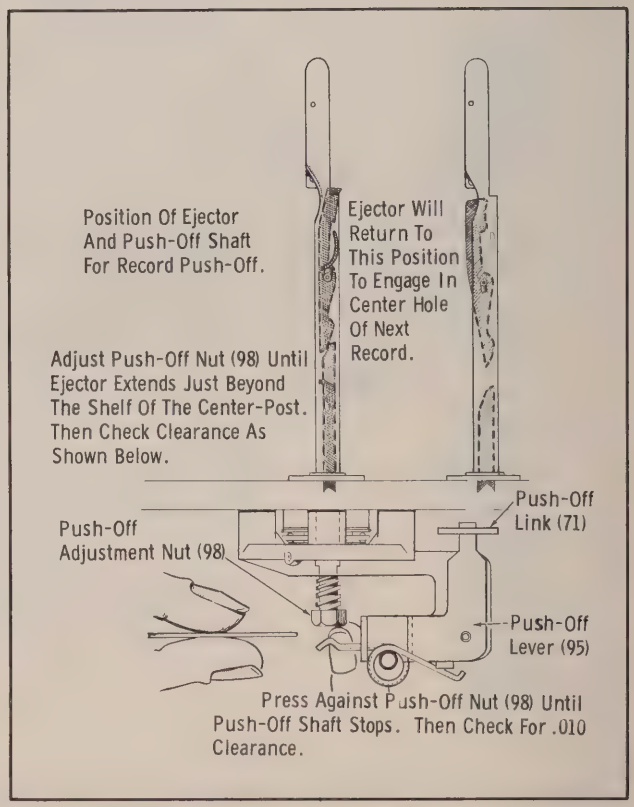


Fig. 8. Adjusting For Correct Push-Off.

5. Slide a 10 thousandths of an inch (.010) feeler gauge between the flat surface of the adjustment nut (98) and the safety spring (96) to check and adjust until gauge passes freely.

NOTE: The additional travel for the push-off shaft may vary, of course, in order to obtain proper push-off. However, the clearance of 10 thousandths of an inch (.010) must not vary more than plus of minus 5 thousandths.

SERVICE AND REPAIR

Lubrication

Do not apply GREASE to the trip slider (38). Under normal operating conditions, the motor should never require lubricating. When lubricating the changer, keep oil or grease away from the motor shaft, motor idler wheel, and turntable rim.

Before lubricating the set-down index (77), see Fig. 9. Grease or oil must not exist at certain points on the set-down index. This assembly must be clear and dry at these points in order to pivot freely of its own weight.

Friction between the gear engagement pawl (47) and the trip motion arm (49) may be increased by placing a very slight amount of a lubricant such as Cosmolube #1 (Part Number 418A50-1) on the fibre washer (48). Lubriplate #107 or "Vaseline" petroleum jelly may be used as a substitute here, but be sure other parts are free of oil, grease, and dirt.

The shaft for the leveling arm (1) must be free of binding in its bearing in the tone arm base. Molykote Type G lubricant, Part Number 418A78 preferably should be used to lubricate the shaft; graphite oil or a light machine oil may be used as a substitute here.

The oilite bearing in the turntable hub and the tone arm base should be lubricated with Standard Nonpariel Turbine Oil (Admiral Part Number 418A61). Oil used here must be fluid in order that it may penetrate and be absorbed by the bearing material. Never use grease of any kind.

The turntable thrust bearing should be packed with a heavy grease, Part Number 418A68 or Houghton Absorbed Oil #100.

Other points of movement throughout the record changer should be cleaned and lubricated with Cosmolube #1 whenever the changer is serviced.

Use alcohol to remove any oil or grease which may be on the idler wheel tire, inside rim of the turntable, the rubber drive belt, or the rubber grommets.

Removing And Replacing The Turntable

CAUTION: Attempting to pry the turntable out of the changer pan on models using the plastic escutcheon (2), will damage the escutcheon. Do not remove the escutcheon to remove the turntable.

Remove the changer from its compartment or cabinet, then, proceed as follows:

1. Remove the "E" retaining ring (8) at the top of the turntable hub.

2. Grasp leveling arm (1) at shaft end, lift and swing aside.

3. Place the changer so that the front edge with the control panel is to the right. The tone arm base should be at the far left hand corner.

4. Grasp the changer pan between the palms of both hands and extend the fingers over the turntable.

5. Invert the changer pan and allow the turntable to drop into the fingers of both hands. Use care when removing the turntable to prevent losing the turntable thrust bearing (90).

6. Before replacing the turntable, be sure the rim of the turntable and the idler wheel tire are clean. Use alcohol to remove finger marks, etc.

7. Do not force the turntable to engage the idler wheel with the turntable rim. Always move the idler wheel by moving the idler wheel slide which is accessible from the underside of the changer pan through the opening for the turntable motor. Do not handle the rubber tire on the idler wheel or attempt to pry the idler wheel with any tools.

Replacing Set-Down Index (77)

Although the set-down index (77) is factory assembled and requires no adjustment, some care is required when it is being replaced. The top surface of the set-down index bracket mounts to the changer pan and is positioned by two 1/8-inch diameter half-punches which interlock in holes in the changer pan. A #6-32 machine screw secures the set-down index in place. See Fig. 9.

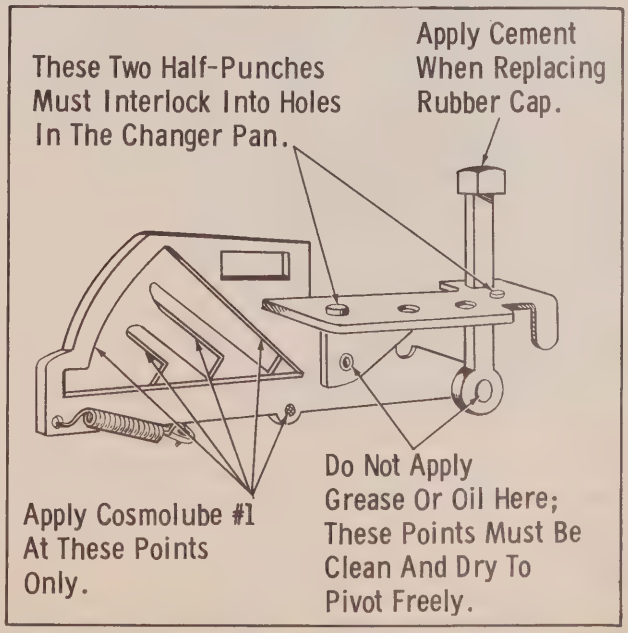

These Two Half-Punches Must Interlock Into Holes In The Changer Pan.
Apply Cement When Replacing Rubber Cap.
Apply Cosmolube #1 At These Points Only.
Do Not Apply Grease Or Oil Here; These Points Must Be Clean And Dry To Pivot Freely.

Fig. 9. Set-Down Index Assembly.

Replacing The Centerpost

The centerpost is held in the turntable hub by an Allen set screw. The milled flat at the lower end of the centerpost (just above the push-off spring) must be aligned with this set screw. The lower edge of the retaining ring groove on the centerpost must be flush with the top surface of the turntable shaft, or be no more than 5 thousandths of an inch above the turntable shaft, to within 5 thousandths of an inch above after the Allen set screw is tightened to hold the centerpost in place.

Whenever the centerpost has been removed or replaced, the push-off adjustment must be checked. The push-off adjustment nut on the push-off shaft is preadjusted at the factory and is ready for installation final adjustment is made after the centerpost is installed.

RECORD CHANGER TROUBLE SHOOTING

Changer Will Not Trip Into Change Cycle

1. Be sure there is no binding at the bearing in the tone arm base or between the shaft of the tone arm control lever (84) and the shaft of the set-down arm (82).

2. Check that the trip slider (38) is free of oil or grease and dirt; that the trip slider moves freely.

3. Check that the trip motion arm (49) and the gear engagement pawl (47) are free of oil or grease and dirt; that these parts move together readily. A slight amount of grease (see "Lubrication" on Page 11) may be applied to the fibre washer (48). If this does not correct improper trip action, replace gear engagement pawl and trip motion arm assembly.

4. Check for bent, loose or misplaced trip slider return spring on the control plate (108).

5. Be sure gear index arm assembly (54) is not binding on changer pan.

6. Check for binding of drive gear assembly (51) in bushing (55).

7. Check control plate assembly (108) for binding against the grooved guide stud. Bend pivot stud and/or control plate assembly until the action is free.

Changer Repeatedly Trips Into Cycle

1. Check tension of gear indexing spring (74).

2. Check for bent trip slider return spring.

3. Check for bent trip slider (38).

4. Check gear index arm assembly (54) for binding against changer pan.

Tone Arm Does Not Set-Down Properly

1. Check set-down adjustment. See "Set-Down Adjustment" on Page 7.

2. Check for binding in set-down index assembly (77).

3. Check that the set-down index bracket properly interlocks with changer pan. See Fig. 9.

Tone Arm Skips Grooves On Records

1. Be sure the grooves on records are clean and not damaged.

2. Check that the record changer is level in its cabinet or compartment. See "Installation" on Page 3.

3. Check the condition of the phonograph needle in the pickup cartridge; replace worn needles. Check that the needle is not twisted or bent out of shape.

4. Be sure there is no binding at the bearing in the tone arm base or between the shaft of the tone arm control lever (84) and the shaft of the set-down arm (82).

5. Check that the trip slider (38) is free of oil or grease and dirt; that the slider is not bent and is free of burrs.

6. Check for binding between the trip motion arm (49) and the gear engagement pawl (47). These parts must move without loading the trip slider.

Records "Squeak" On Turntable

1. Be sure the records are free of label burns folded into the center hole.

2. Remove any dirt on the surface of the centerpost.

3. Place a few drops of light machine oil on a soft cloth and polish the centerpost with this cloth.

Changer Causes Rumble Or Noise

Rumble is due to vibrations developed by the motor, finding a conducting path to the pickup. This path is generally through the thrust bearing to the turntable. To reduce rumble developed in this manner, the thrust bearing should be thoroughly cleaned with carbon tetrachloride and packed with a heavy grease which can be ordered under Part Number 418A68 or Houghton Absorbed Oil #100. Rumble may also be caused by insufficient motor grommet cushioning, idler wheel not rolling freely, or idler wheel being at an angle. These points should be checked if cleaning and greasing thrust bearing does not reduce rumble. Also check the following:

1. BE SURE that the shipping screws on each side of changer pan have been removed.

2. Check for any mechanical rub near the motor.

3. Check for broken float spring.

4. Be sure plastic escutcheon is securely held to changer pan by the four mounting screws.

Records Do Not Push Off Or More Than One Record Drops To The Turntable

1. Check for broken or weak ejector return spring in the centerpost.

2. Check for weak push-off return spring (97).

3. Check the push-off adjustment. See Fig. 8.

4. Check that no foreign material is between the record shelf and the ejector in the centerpost.

Changer Trips Into Change Cycle Before Finishing Record

1. Check for foreign material between trip motion arm (49) and engagement pawl (47).

2. Check for bent trip slider return spring.

3. Check for bent trip slider (38).

Records Fall To Turntable Unevenly

1. Be sure centerpost is clean.

2. Be sure push-off ejector operates freely.

3. Check the push-off adjustment. See Fig. 8.

Changer Stalls In Change Cycle

1. Idler wheel rubber tire may have foreign material on it. Clean the idler wheel and the turntable rim with alcohol.

2. Motor drive belt may be slipping. Clean with alcohol or, if necessary, replace with new belts.

3. Be sure push-off adjustment has proper clearance. See Fig. 8.

Changer Does Not Shut Off Automatically

1. Check for binding between leveling arm shaft and the bearing in tone arm base. Use Molykote Type G powder preferably; graphite oil or a light machine oil may be used to lubricate the shaft.

2. Check tension in shut-off delay stop engagement spring (102).

3. Check for binding of shut-off delay stop (103).

4. Check for binding of cam on shut-off link (104).

5. Check tension in shut-off arm spring (107).

Rapid Drive Belt Wear

1. Check for proper lubrication on drive belt shaft.

2. Check for grease and/or oil on drive belt.

CAUTION

1. Never operate record changer through changer cycle with power while the changer is tilted up on one edge. Keep changer level when checking operation with power.

2. See that the rubber tire on the idler wheel and drive belt are free of oil, grease, dirt or any foreign material. Alcohol should be used for cleaning these parts. When handling these parts, keep fingers and hands away from the driving surface. Natural body oils may cause slippage.

3. Always move the speed selector pointer until it makes a definite stop and locks into position. Erratic action will result if this is not done.

4. Be sure that the shipping screws on each side of the changer pan are removed. Noise will result from any mechanical vibration, resulting in a rumble in the speaker.

Ref. No.	Part No.	Description
1	G400B662-4	Leveling Arm Assembly (Gray) for RC607-1, RC607-1A, RC607-1B, RC607-4, RC607-4A and RC607-6A
	G400B662-2	Leveling Arm Assembly (Gold) for RC637-1, RC637-1B, RC637-1E, RC637-2, RC637-2A, RC637-2B, RC647-2D, RC647-3B, RC647-3C and RC647-3F
2	403D64-5	Escutcheon (Gold), for RC637-1,RC637-1B,RC637-1E, RC637-2,RC637-2A,RC637-2B, RC647-2D,RC647-3B,RC647-3C, and RC647-3F
3	1A58-2-58	Escutcheon Mtg. Screw , for RC637-1, RC637-1B,RC637-1E, RC637-2,RC637-2A,RC637-2B, RC647-2D,RC647-3B,RC647-3C, and RC647-3F
4	403D63-3	Knob (Coral), for RC637-1, RC637-1B,RC637-1E,RC637-2, RC637-2A,RC637-2B,RC647-2D, RC647-3B,RC647-3C, and RC647-3F
	403C86	Knob (Gray), for RC607-1, RC607-1A,RC607-1B,RC607-4, RC607-4A, and RC607-6A
5	401A385	Knob Bracket, for RC637-1, RC637-1B,RC637-1E,RC637-2, RC637-2A,RC637-2B,RC647-2D, RC647-3B,RC647-3C, and RC647-3F
	401A441	Knob Bracket, for RC607-1, RC607-1A, RC607-1B,RC607-4, RC607-4A, and RC607-6A
6	402A342	Knob Mtg. Screw, for RC637-1, RC637-1B,RC637-1E,RC637-2, RC637-2A,RC637-2B,RC647-2D, RC647-3B,RC647-3C, and RC647-3F
7	G400B602-4	Standard Turntable Ass'y.(Gray), RC607-1,RC607-1A,RC607-1B, RC607-4,RC607-4A,and RC607-6A
	G400B633-3	Hi-Fi Turntable Ass'y.(Coral), for RC637-1,RC637-1B, RC637-1E, RC637-2, RC637-2A, RC637-2B, RC647-2D, RC647-3B, RC647-3C, and RC647-3F
8	401A355-3	5/16" "E" Ring
9	403C84-5	Tone Arm (Gray), for RC607-1, RC607-1A,RC607-1B,RC607-4, RC607-4A, and RC607-6A
	403C84-3	Tone Arm (Coral), for RC637-1, RC637-1B,RC637-1E,RC637-2, RC637-2A,RC637-2B,RC647-2D, RC647-3B,RC647-3C, and RC647-3F
10	2B10-5-59	1/8" Speed Nut
11	G400A685	Tone Arm Shielded Lead (includes pin jacks) for RC607-1, RC607-1A, RC607-1B,RC637-1, RC637-1B,RC637-1E,RC637-2, RC637-2A,RC637-2B,RC647-2D, RC647-3B, RC647-3C
	G400A660-3	Tone Arm Shielded Lead (includes pin jacks) for RC607-4, RC607-4A
	G400A660-2	Tone Arm Shielded Lead (includes pin jacks) for RC607-6A
12	401A428	Tone Arm Clip
13	402A366	#4 x 3/16 R. H. Screw
14	1A69-1-20	#4 x 1/4 Phillips R.H.M.S.
15	G400A611	Tone Arm Mount and Pivot Plate Assembly
16	45-750-C2-47	Set-Down Adj. Screw, #4-40 x 3/4 B.H.M.S.
17	405A137	Set-Down Adj. Lock Spring
18	401A403-2	Tone Arm Counter Weight
19	401A403-1	Tone Arm Counter Weight
20	405A148	Lift Adj. Lock Spring
21	402A290	Lift Adj. Screw
22	1A69-1-20	#4 x 1/4 R.H. Phillips Screw
23	412A47	Felt Washer
24	405A163	Counter Balance Spring, for RC607-1,RC607-1A,RC607-1B, RC637-1,RC637-1B,RC637-1E, RC637-2,RC637-2A,RC637-2B, RC647-2D,RC647-3B,RC647-3C, and RC647-3F
	405A163-2	Counter Balance Spring (Black), for RC607-4, RC607-4A, and RC607-6A
25	414A48	Pivot Shaft
26	G400A610	Tone Arm Mount and Hub (includes Set Screw)
27	402A296	#8-32 Knurled Point Set Screw
28	403C85	Tone Arm and Leveling Arm Base (Gray) for RC607-1, RC607-1A, RC607-1B, RC607-4, RC607-4A and RC607-6A
	403C85-2	Tone Arm and Leveling Arm Base (Coral) for RC637-1, RC637-1B, RC637-1E, RC637-2, RC637-2A, RC637-2B, RC647-2D, RC647-3B, RC647-3C and RC647-3F
29	1A56-10-24	#6 x 1/4 S.T.B.H. Phillips Screw
30	G400A651	Tone Arm Alignment Bracket and Trigger Assembly
31	405A160	Trigger Cocking Spring
32	403D65-4	Tone Arm Rest (Gray), for RC607-1,RC607-1A,RC607-1B, RC607-4,RC607-4A, and RC607-6A
	403D65-3	Tone Arm Rest (Coral), for RC637-1,RC637-1B,RC637-1E, RC637-2,RC637-2A,RC637-2B, RC647-2D,RC647-3B,RC647-3C, and RC647-3F
33	401A396-5	7/16" Crescent Ring
34	405A161	Set-Down Pivot Spring
35	760-187-C2-57	#6-32 x 3/16 Phillips R.H. Sems Screw
36	G400A652	12" Set Down Slide Assembly
37	405A159	12" Set-Down Slide Spring
38	G400A575	Trip Slider and Stud Assembly
39	401A355-1	3/16" "E" Ring
40	4B2-178-0	Flat Washer, Brass

Ref. No.	Part No.	Description
41	401A355-1	3/16" "E" Ring
42	4B2-178-0	Flat Washer, Brass
43		
44		
45		
46		
47	G400A588	Gear Engagement Pawl and Trip Motion Arm Assembly
48		
49		
50		
51	G400A587	Drive Gear and Stud Assembly
52	4B2-178-0	Flat Washer, Brass
53	1A71-10-47	#6 x 3/8 B.H. Screw
54	G400A620	Gear Indexing Arm and Stud Assembly
55	415A31	Drive Gear Bushing
56	401A355-1	3/16" "E" Ring
57	401A388	Flat Washer
58	G400A608	Switch and Reject Arm Assembly
59	405A140	Reject Arm Return Spring
60	401A355-1	3/16" "E" Ring
61	401A388	Flat Washer
62	401A366	Speed Link Friction Washer
63	4B2-178-0	Flat Washer, Brass
64	G400A607-2	Speed Change Link and Stud Assembly
65	760-187-C2-57	#6-32 x 3/16 Sems Screw
66	*	Changer Pan Assembly
67	405A140	Shut-off Link Return Spring
68	414A50	Shut-off Link Hold Down
69	402A370	#6 x 3/16 Phillips R.H. Screw
70	405A99	Retaining Ring
71	401A379	Push-off Link
72	401A388	Flat Washer
73	401A355-1	3/16" "E" Ring
74	405A147	Gear Indexing Spring
75	1A71-10-47	#6 x 3/8 B.H. Screw
76	406A29	10" Index Finger Cap
77	G400A653	Set-Down Index Ass'y.
78	405A143	Index Return Spring
79	405A146	Arm Return Spring
80	401A396-4	5/16" Crescent Ring
81	415A34	Set-Down Arm Spacer
82	G400A616	Set-Down Arm Ass'y.
83	412A40	Set-Down Friction Washer
84	G400A615	Tone Arm Control Lever and Shaft Assembly
85	402A284	Lift Rod
86	405A144	Set-Down Engagement Spring
87	4B1-195-47	Flat Washer
88	401A355-1	3/16" "E" Ring
89	G400B601	Centerpost Assembly
90	415A29-2	Thrust Bearing
91	402A296	#8-32 Set Screw
92	404B41	Turntable Support Hub
93	401A355-1	3/16" "E" Ring
94	4B1-68-47	Flat Washer
95	G400A632	Push-Off Lever and Stud Assembly
96	405A154	Safety Spring
97	405A142	Push-off Return Spring
98	403A87	Push-Off Adjustment Nut
99	404B46	Record Clamp Bearing
100	402A369	#6-32 x 5/16 Phillips Truss Head Screw
101	401A398	Shut-off Delay Stop

Ref. No.	Part No.	Description
102	405A153	Shut-off Engagement Spring
103	401A355-1	3/16" "E" Ring
104	G400A629	Shut-off Link and Arm Ass'y.
105	405A152	Shut-off Cam Return Spring
106	401A355-7	3/8" "E" Ring
107	405A151	Shut-off Arm Spring
108	G400A621	Control Plate Ass'y.
109	405A145	Safety Spring
110	G400A622	Safety Arm and Stud Ass'y.
111	401A355-2	1/4" "E" Ring
112	401A448	Drive Link
113	401A388	Flat Washer
114	401A355-1	3/16" "E" Ring
115	G400A605	Drive Eccentric Assembly
116	401A388	Flat Washer
117	285-250-C2-47	#8-32 x 1/4 B.H. Sems Screw
118	G400A606	Switch and Mounting Plate Ass'y.
119	1A27-53-47	#6 x 3/16 Self-Tapping Screw
120	413A16	Trip Coil, for RC647-3C
121	401A449	Trip Coil Bracket, for RC647-3C
122	402A369	Screw, #6-32 x 5/16 Truss Hd. Thread Cutting Screw, for RC647-3C
123	10D1-13	Terminal Assembly, for RC647-3C
124	61A7-25	Resistor (400 ohm, 10W, 10%) for RC647-3C
125	409B21-2	Pickup Cartridge for RC607-1, RC607-1A, RC607-1B, RC637-1, RC637-1B and RC637-1E.
	98C15-62	†Needle replacement for 409B21-2 cartridge (dual sapphire).
	98C15-63	Needle replacement for 409B21-2 cartridge (diamond LP, sapphire 78).
	409B27-2	Pickup Cartridge, for RC637-1, RC637-1B and RC637-1E
	98C15-82	†Needle replacement for 409B27-2 cartridge (dual sapphire)
	409B27	Pickup Cartridge, for RC647-3B, RC647-3C, and RC647-3F
	98C15-81	†Needle replacement for 409B27 cartridge (diamond LP, sapphire 78)
	98C15-82	Needle replacement for 409B27 cartridge (dual sapphire).
	409B26	Pickup Cartridge, for RC607-4 and RC607-4A
	98C15-80	†Needle replacement for 409B26 cartridge (single sapphire)
	409B24	Pickup Cartridge for RC607-6A.
	98B15-67	†Needle replacement for 409B24 cartridge (dual sapphire)
	98B15-68	Needle replacement for 409B24 cartridge (diamond LP, sapphire 78)
126	407C24	Motor Assembly, 117V. 60 Cycle. 4-Speed, 2-Pole, Single Belt; for RC607-1, RC607-1A, RC607-1B, RC607-4, RC607-4A, RC607-6A, RC637-1, RC637-1B, RC637-1E, RC637-2, RC637-2A, & RC637-2B;
127	98B15-57	Idler Wheel
128	98C15-58	Idler Spring
129	98C15-59	Drive Belt for 16 and 33 rpm
130	98C15-60	Drive Pully, 16 and 33 rpm
131	406A24	Speed Link Grommet

* Available on special order. Field replacement not recommended.

†Supplied with cartridge.

PARTS LIST (Continued)

Ref. No.	Part No.	Description
132	406A32	Motor Mounting Grommet.
133	407C27	Motor Assembly, 117V. 60 Cycle, 4-Speed, 4-Pole, Single Belt; for RC647-2D,RC647-3B,RC647-3C, and RC647-3F; Includes:
134	98B15-57	Idler Wheel
135	98B15-58	Idler Spring
136	98B15-59	Drive Belt for 16 and 33 rpm
137	406A32	Motor Mounting Grommet
138	406A34	Speed Link Grommet
139	98C15-83	Drive Pulley 16 and 33 rpm
140	4B1-19-47	Washer.
141	2B10-5-59	Trip Coil Retaining Speed Nut.
142	406A24	Grommet
143	415A37	Cocking Roller
144	401A355-1	Retaining Ring
145	401A455	Washer for set down slide (36)
146	401A355-1	Retaining Ring for set down slide
147	405A162	Leveling Arm Return Spring.
148	4B1-127-47	Washer
149	405A167	Retaining Ring for Leveling Arm

Ref. No.	Part No.	Description
150	413A11-5	Audio Cable and Plug (Shielded, 20" long) for RC607-1, RC607-4, RC637-1, RC637-2
	89A29-13	Audio Cable and Plug (Shielded, 40" long) for RC607-1B, RC637-2B, RC647-3B
	413A11-8	Audio Cable and Plug (Shielded, 20" long) for RC637-1E
	413A11-6	Audio Cable and Plug (Shielded, 30" long) for RC647-3F, RC647-2D, RC647-3C
151	88B8-5	Alden Plug
152	89A1-4	Line Cord for RC607-1B, RC637-1B, RC637-2B, RC647-3B only
153	401A355-1	Retaining Ring
154	401A388	Washer
155	98C15-78	Speed Change Spring
156	98C15-79	Spring Retaining Cap
157	401A355-1	Retaining Ring
158	98C15-50	Retaining Ring
159	98C15-49	Fibre Washer

PARTS FOR CONVERTING 407C24 AND 407C27 MOTORS FOR 50-CYCLE OPERATION

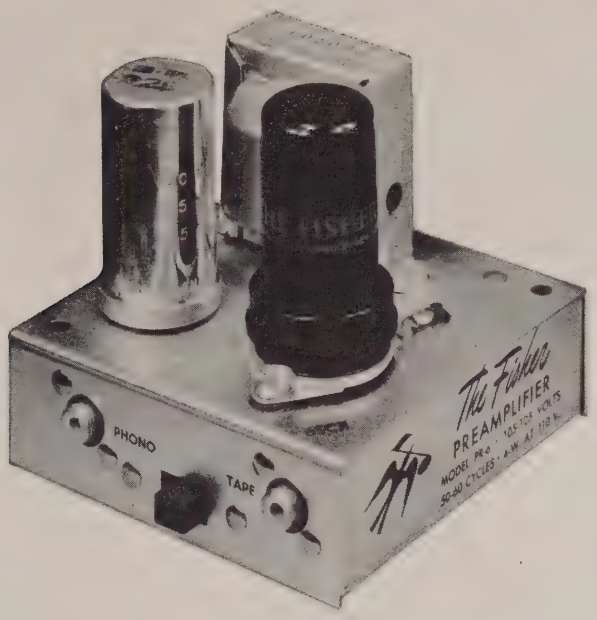
50-Cycle Conversion Kit
for 407C24 Motor 98C15-72
for 407C27 Motor 98C15-88

PARTS LIST FOR 45-rpm SPINDLE (G400B645-2)

Ref. No.	Part No.	Description
1	G400A641-2	Spindle Cap
2	401A413	Index and Retaining Spring
3	402A342	Screw, #4x1/4" Elco Pan Head (2 required)
4	402A349	Pivot Stud (2 required)
5	401A410	Record Slicer (2 required)
6	405A156	Slicer Return Spring
		Record Shelf
7a	403A70	Left

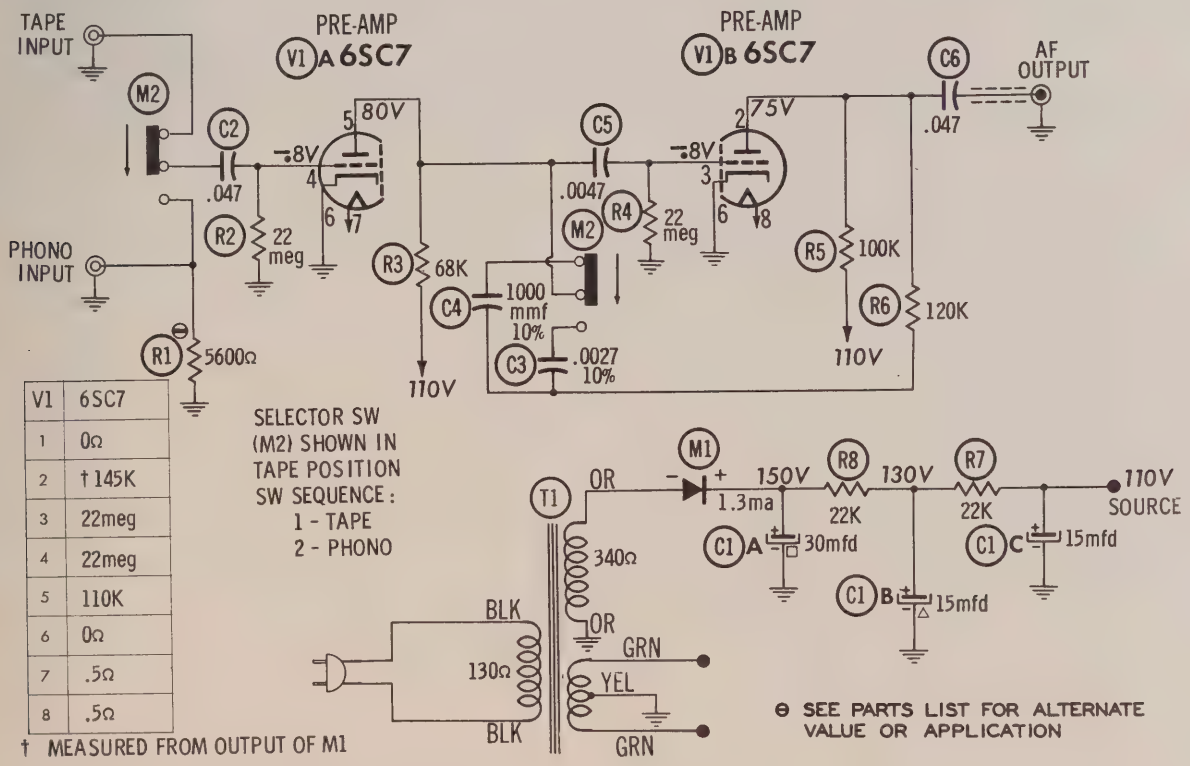
Ref. No.	Part No.	Description
7b	403A69	Right
8	405A157	Shelf Return Spring
9	G400A639	Push-Out Slider Assembly
10	G400A643	Spindle Base Assembly
11	G400A640	Spindle Shaft Assembly
12	40-1750-C2-47	Screw, #4-40 x 1 3/4" RHMS (3 required)
13	G400A642	Rotating Base Assembly
14	400A414	Retaining Ring

PHOTOFACT* Folder



FISHER
MODEL PR-6

TRADE NAME	Fisher Model PR-6
MANUFACTURER	Fisher Radio Corp., 21-21 44th Drive, Long Island City 1, N. Y.
TYPE SET	AC Operated Preamplifier
TUBES (One)	Type 6SC7 Preamplifier
POWER SUPPLY	105-125 Volts AC-50/60 Cycle RATING .04 Amp. @117 Volts AC (4 Watts)



V1	6SC7
1	0Ω
2	†145K
3	22meg
4	22meg
5	110K
6	0Ω
7	.5Ω
8	.5Ω

† MEASURED FROM OUTPUT OF M1

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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H394

SET 398 FOLDER 8

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamplifier	6SC7	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FISHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■30	150	C515-122	AFH3-17-50	C0070	FP311.4	TMT-7	T-035	TVL-3437
B	▲15	150							
C	15	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	FISHER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	C68P473M2	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C3	0027	200	C68P272K2							10%
C4	1000		CC26GP102K5			1R5D1	ED-1000	MCB255	MS-21	10%
C5	.0047	200	C68P472F2	P288N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	5TM-D47	
C6	.047	200	C68P473M2	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		FISHER PART No.	NOTES
	OHMS	WATT		
R1	5600Ω		RC20BF562K	Note 1
R2	22meg		RC20BF226K	
R3	68K		RC20BF683K	
R4	22meg		RC20BF226K	

ITEM No.	RATING		FISHER PART No.	NOTES
	OHMS	WATT		
R5	100K		RC20BF104K	
R6	120K		RC20BF124K	
R7	22K		RC20BF223K	
R8	22K		RC20BF223K	

Note 1 Chassis with pickering cartridge use 3900Ω in this application

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	FISHER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .04A	115V ⓐ .0013A	6.3VCT ⓐ .300A	T-515-118						

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	FISHER PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.0013A	SR3180	1159 ①	CR-20 ①	10 ①	①Pig Tail Leads

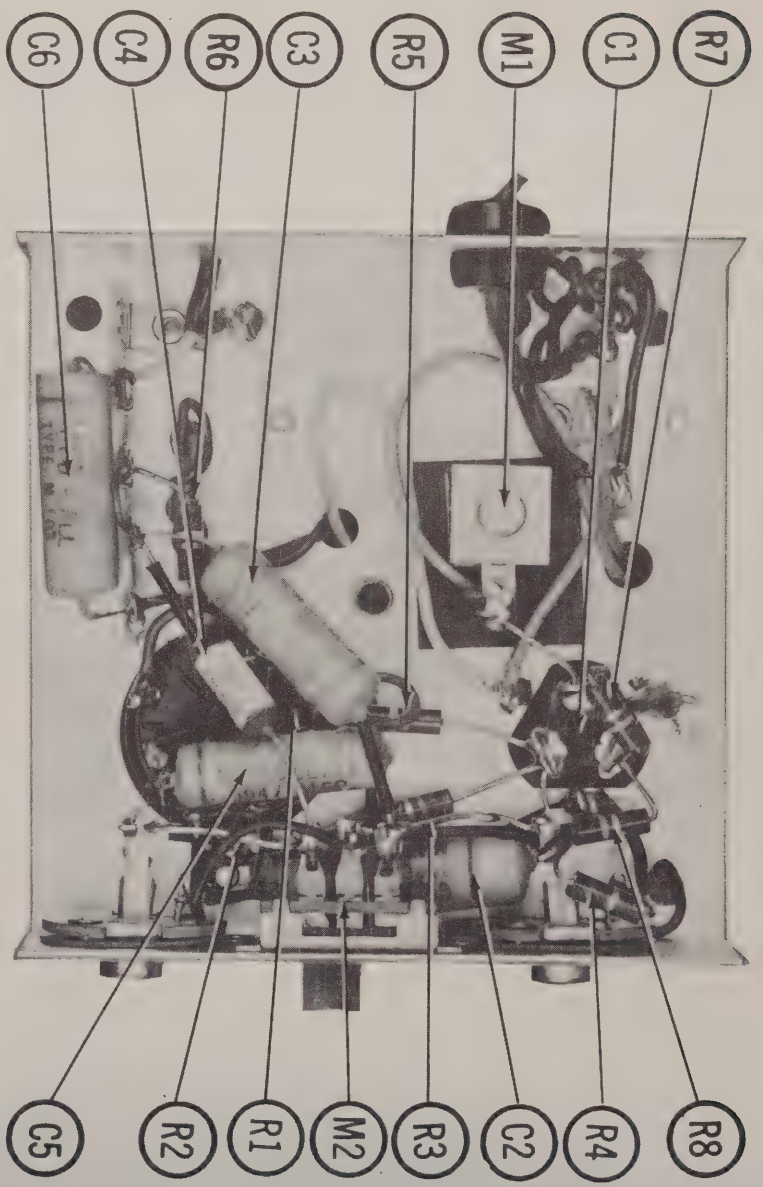
MISCELLANEOUS

ITEM No.	PART NAME	FISHER PART No.	NOTES
M2	Switch	S-505-117	Phono-Tape (Slide Type DPDT)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW



PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

OLYMPIC-OPTA MODEL
Domino 5806 T/W

OLYMPIC-OPTA MODEL
Domino 5806 T/W

TRADE NAME	Olympic-Opta Model Domino 5806T/W		
MANUFACTURER	Olympic Radio & Tel. Corp., 34-01 38th Ave., Long Island City 1, N. Y.		
TYPE SET	AC Operated FM-BC-SW Receiver With 3 Speed Automatic Record Changer		
TUBES (Six)	Types 6AQ8/ECC85 FM RF Amp.-FM Conv., 6AJ8/ECH81 1st FM IF Amp.-AM Mixer-AM Osc., 6BY7/EF85 2nd FM-1st AM IF Amp., 6T8/EABC80 Ratio Det.-AM Det.-AVC-AF Amp., 6BR5/EM80 Tuning Indicator, 6BQ5/EL84 Output		
POWER SUPPLY	110/127/150/220 Volts AC-60 Cycles	RATING	.53 Amp. @ 117 Volts AC (54 Watts)
TUNING RANGES	BROADCAST 540-1600KC LONG WAVE 140-390KC	FREQ.MOD. SHORT WAVE	88-108MC 6-18MC

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE PERPETUUM EBNER MODEL REX A—PHOTOFACT SET 378 FOLDER 10

OLYMPIC-OPTA MODEL
Domino 5806 T/W

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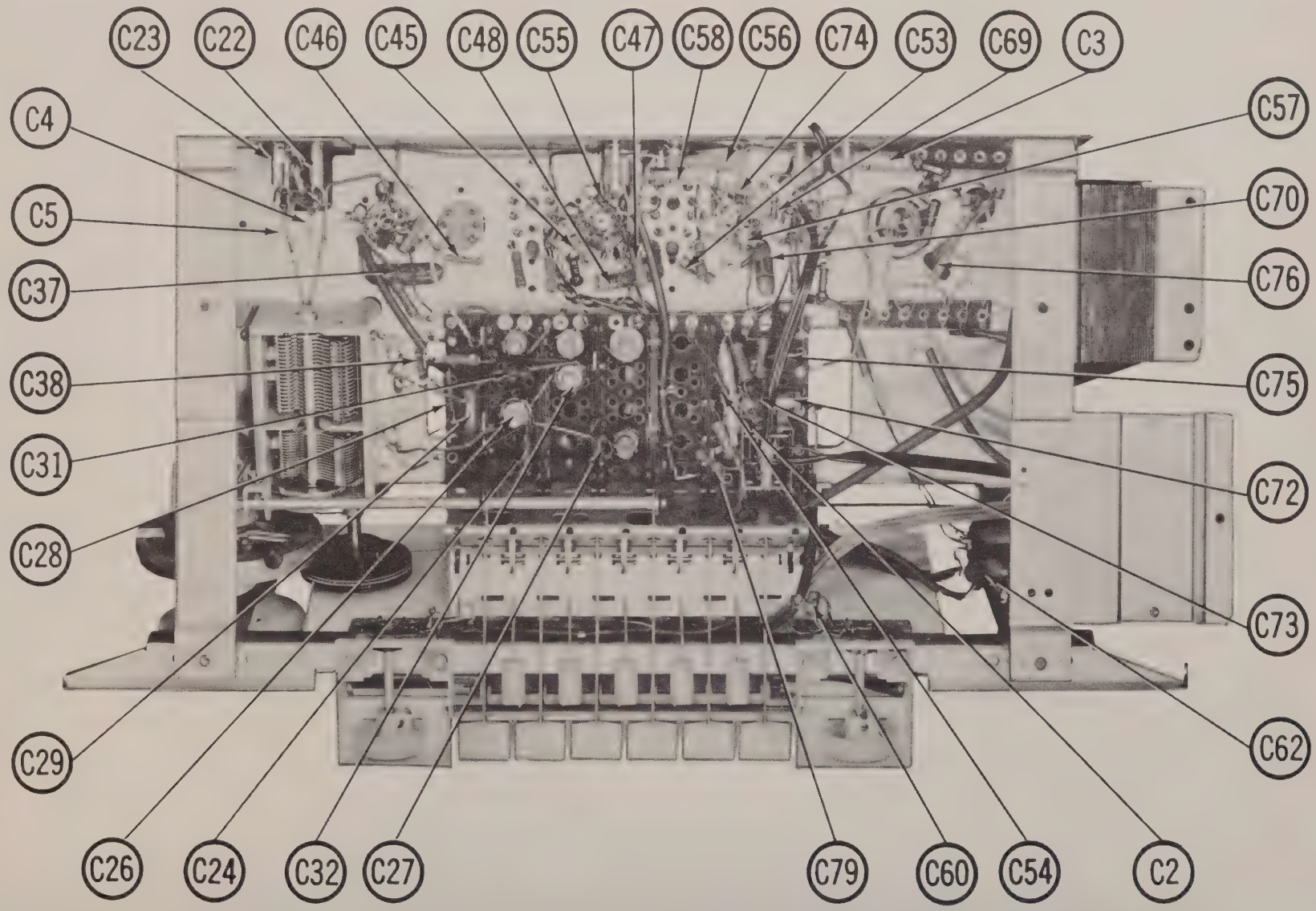
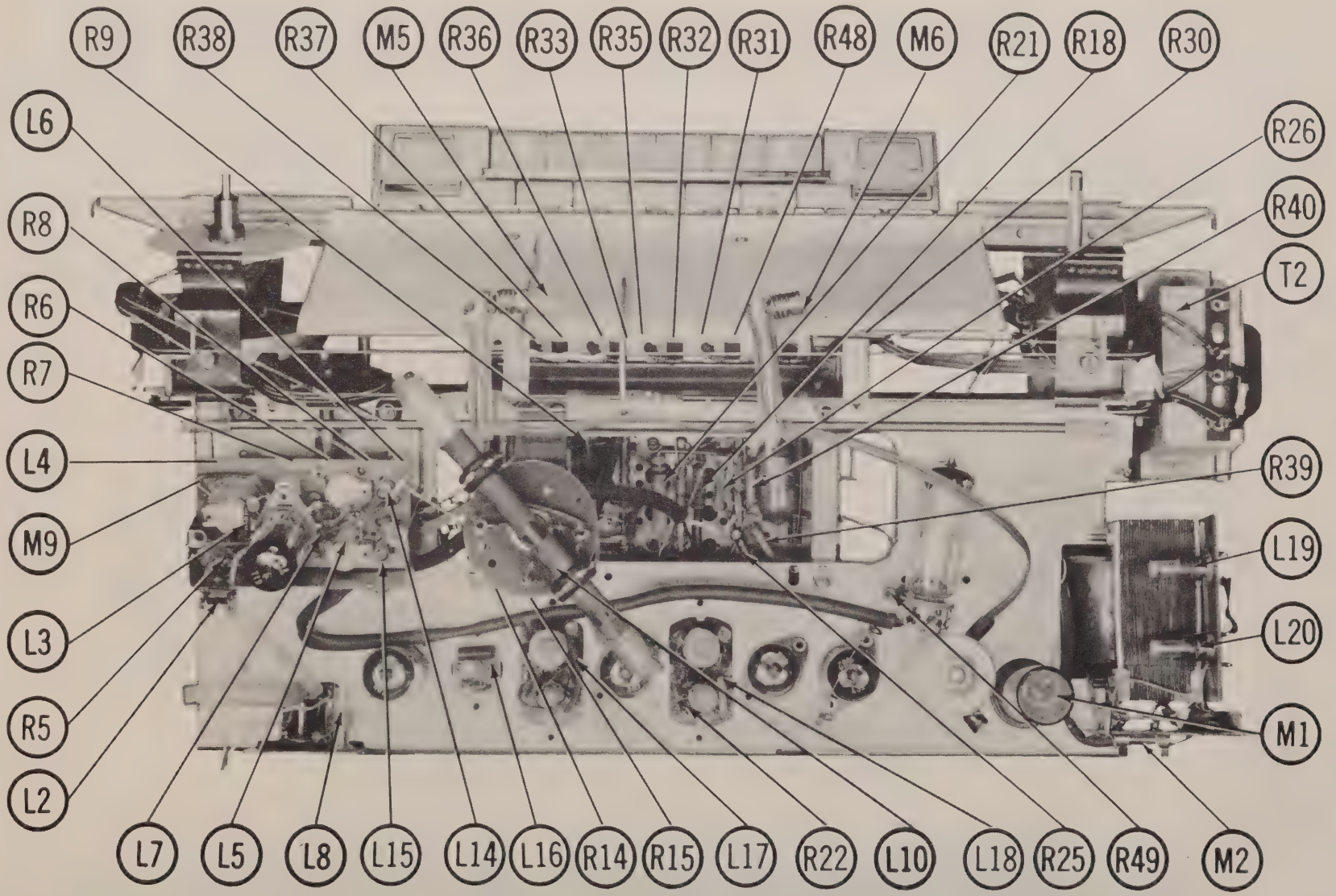


CHASSIS BOTTOM VIEW—CAPACITOR IDENTIFICATION

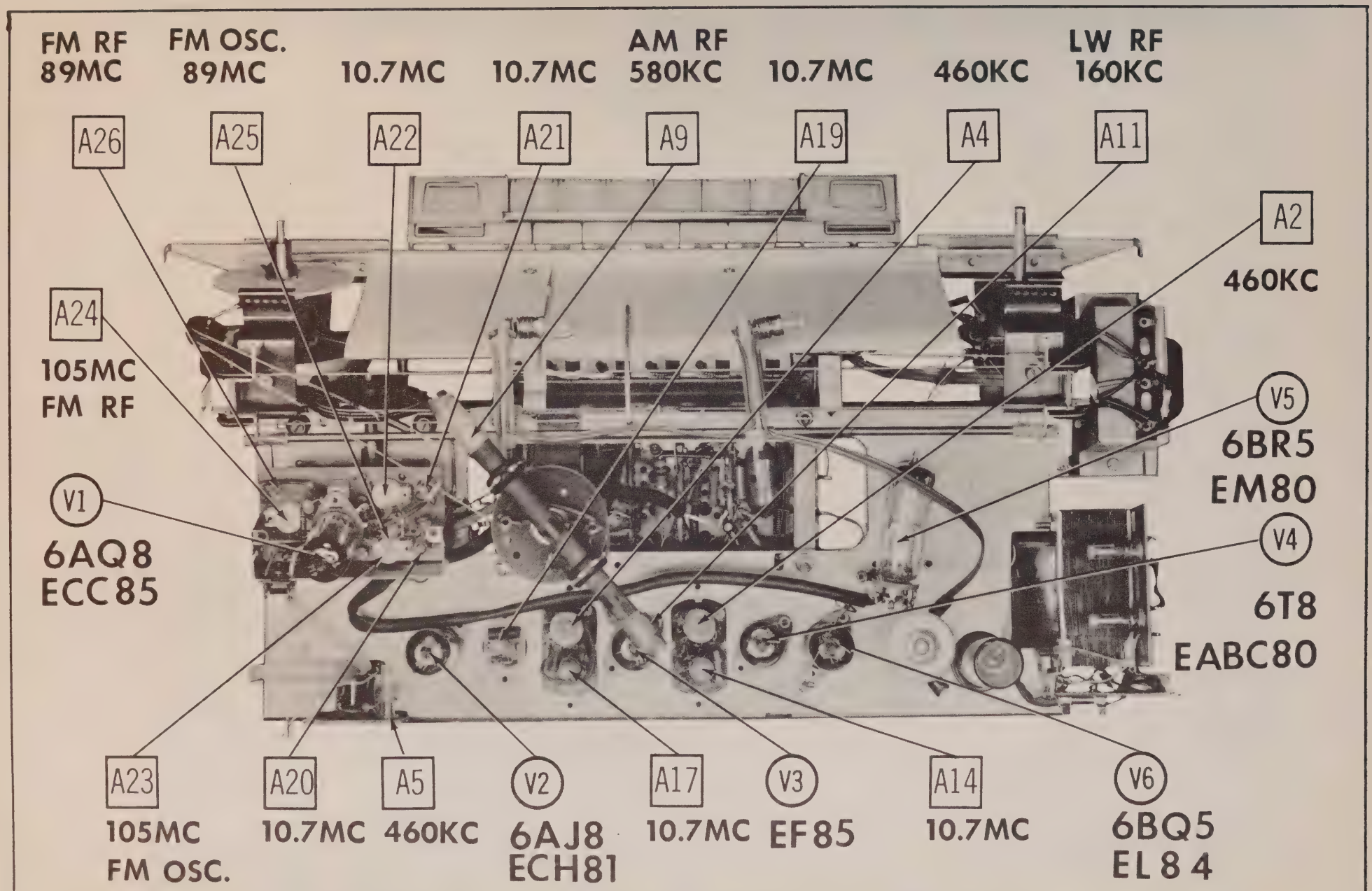
CHASSIS TOP VIEW—CAPACITOR IDENTIFICATION

MODEL DOMINO 5806T/W

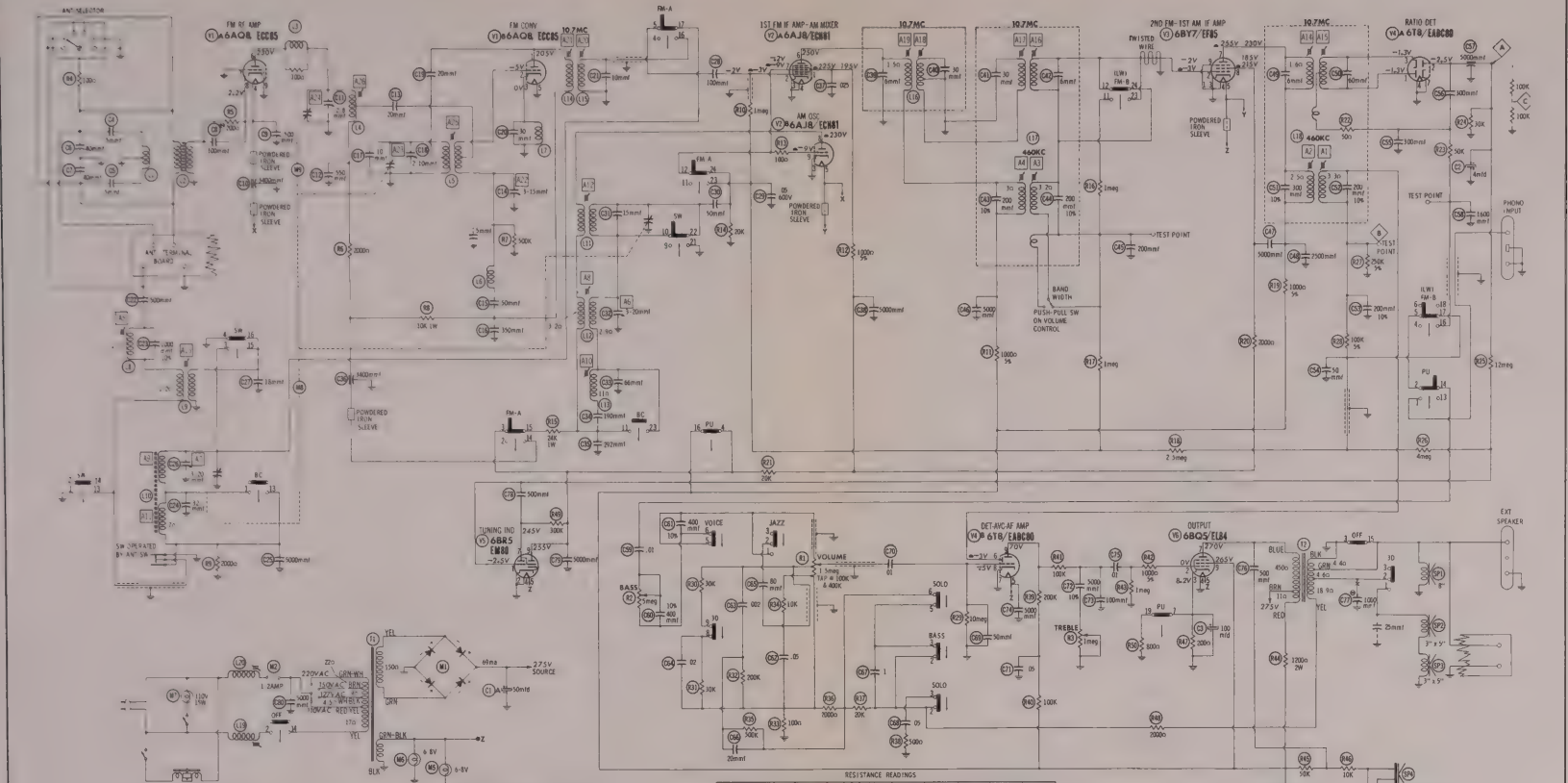
OLYMPIC-OPTA



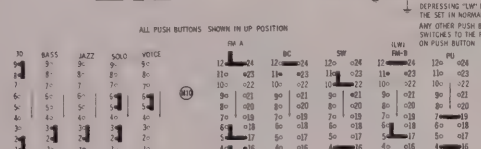
CHASSIS TOP VIEW—RESISTOR, INDUCTOR & MISCELLANEOUS IDENTIFICATION



CHASSIS TOP VIEW—TUBE & ALIGNMENT IDENTIFICATION



ALL PUSH BUTTONS SHOWN IN UP POSITION



DEPRESSING "LW" PUSH BUTTON ENERGIZES THE SET IN NORMAL "LONG WAVE" POSITION
ANY OTHER PUSH BUTTON ENERGIZES SET AND SWITCHES TO THE FUNCTION OR RANGE INDICATED ON PUSH BUTTON

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8 ECC85	1 10K	500K	.1o	1o	0o	1 2000o	0o	200o	0o
V2	6AJ8 ECH81	1 20K	2 2meg +4 5meg	0o	0o	1o	1 1000o	1 2meg +20K	1 24K	1 2meg +20K
V3	6BY7 EF85	0o	250K +4.5meg	0o	0o	.1o	0o	1 1000o	1 22K	0o
V4	6T8 EABC80	1MF	30K	1MF	.0o	.1o	250K	0o	10meg	1 300K
V5	6BR5 EM80	3.3meg	0o	NC	0o	.1o	NC	1 300K	NC	1 0o
V6	6BQ5 EL84	NC	1meg	200o	0o	.1o	NC	1 1650o	NC	1 0o

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
1 MEASURED FROM OUTPUT OF M1
= MEASURED IN "BC" POSITION
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Set Tone controls to their mid-range. Set all Tone Buttons in "UP" position.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis	460KC (400~Mod)	BC	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum deflection.
2.	200mmf	High side to AM antenna terminal. Low side to chassis.	"	"	"	"	A5	Adjust for MINIMUM deflection.
3.	"	"	1510KC	"	1510KC	"	A6, A7	Adjust for maximum deflection.
4.	"	"	580KC	"	580KC	"	A8, A9	Adjust for maximum deflection. A9 is adjusted by moving coil on ferrite core.
5.	"	"	160KC	LW	160KC	"	A10, A11	Adjust for maximum deflection. A11 is adjusted by moving coil on ferrite core.
6.	"	"	7MC	SW	7MC	"	A12, A13	Adjust for maximum deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	200mmf	High side to pin 2 (grid) of EF85 (V3). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A14	Adjust for maximum deflection.
8.	"	"	"	"	"	DC probe to point (B). Common to point (C).	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
9.	"	High side to pin 2 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	"	"	"	DC probe to point (A). Common to chassis.	A16, A17, A18, A19, A20, A21	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	200mmf	High side to pin 2 (grid) of EF85 (V3). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A14	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A15	Reconnect capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.
9.	"	High side to pin 2 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	"	"	"	Vert. Amp. to point (A). Low side to chassis.	A16, A17, A18, A19, A20, A21	Disconnect capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across FM antenna terminals.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point (A). Low side to chassis.	A22	Disconnect stabilizing capacitor C2. Adjust for MINIMUM deflection.
11.	"	Across FM antenna terminals.	105MC	"	105MC	"	A23,A24	Adjust for maximum deflection.
12.	"	"	89MC	"	89MC	"	A25,A26	Adjust for maximum deflection. Reconnect capacitor C2.

FIG. 1

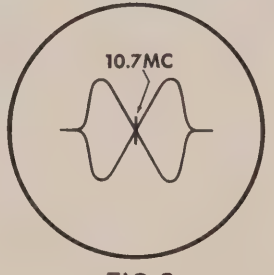
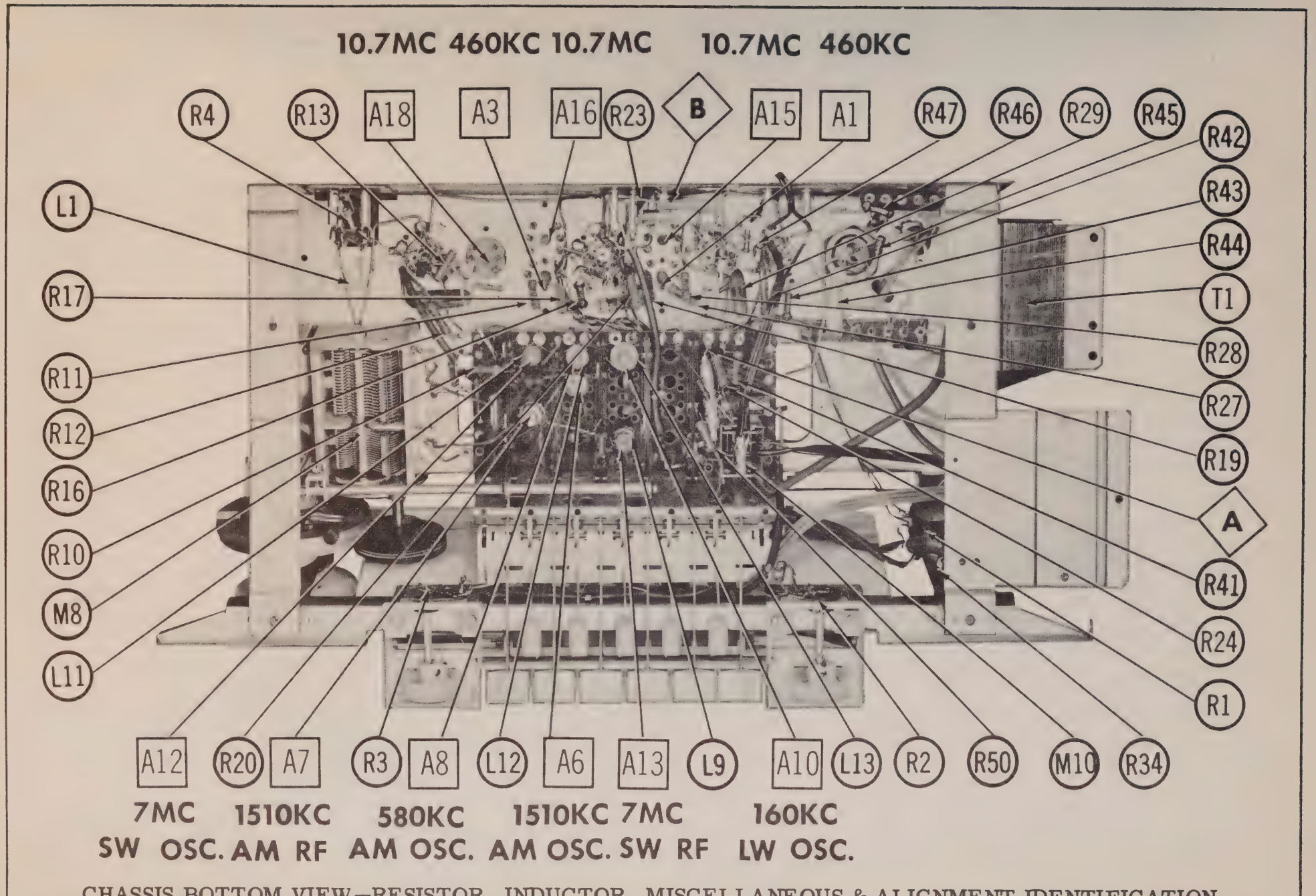


FIG. 2



CHASSIS BOTTOM VIEW—RESISTOR, INDUCTOR, MISCELLANEOUS & ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	6AQ8/ECC85
V2	1st FM IF Amp. - AM Mixer - AM Osc.	6AJ8/ECH81
V3	2nd FM - 1st AM IF Amp.	6BY7/EF85
V4	Ratio Det. - AM Det. - AVC - AF Amp.	6T8/EABC80
V5	Tuning Indicator	6BR5/EM80
V6	Output	6BQ5/EL84

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Olympic-Opta PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	385		PR4-200	BBRQ0174		CDB-Q-422	D-190	TVA-4750
B	50	385							
C2	4	80		PRS150V4	BBR4-150	TC40	TD-4-150	MT-1504	TVA-1402
C3	100	15		PRS15V100	BBR100-15	TC2501	TD-100-15	MTH-1510	TVA-1160

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Olympic-Opta PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	5			NPO-DI 5	DD-050	L10V5	ED-5	ZT-555	5GA-V5	
C5	5			NPO-DI 5	DD-050	L10V5	ED-5	ZT-555	5GA-V5	
C6	40				D6-400					
C7	40				D6-400					
C8	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	①
C9	500			BPD-0005	DD-501	BYA10T5	ED-500	UC-535	5GA-T5	
C10	3400									
C11	2-8									
C12	550									
C13	20			SI 20	D6-200		GP-20		5GA-Q2	
C14	3-15									
C15	50			SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C16	350									
C17	10			BPD-00001	DD-100	L10Q1	ED-10	UC-541	5GA-Q1	
C18	2-10									
C19	20			SI 20	D6-200		GP-20		5GA-Q2	
C20	30			SI 30			GP-30		5GA-Q3	
C21	10			BPD-00001	DD-100	L10Q1	ED-10	UC-541	5GA-Q1	
C22	500			1468-0005	D6-501	5W5T5	ED-500	MC245	1FM-35	
C23	1000			1464-001	D6-102	1DR5D1	ED-1000	MCB255	MS-21	10%
C24	32									
C25	5000			1467-005	D6-502	1W5D5	ED-005	MC465	1FM-25	
C26	3-20									
C27	18			SI 18	D6-180	LT6Q18	GP-18	UC-5418	5GA-Q18	
C28	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C29	.05	600		P688N-05	DF-503	CUB6S5		GEM-615	6TM-S5	
C30	50			SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C31	15			SI 15	D6-150	LT6Q15	GP-15	UC-5415	5GA-Q15	
C32	3-20									
C33	66									
C34	190									
C35	292									
C36	3400									
C37	.025	250		P488N-025						
C38	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C39	6					C10V6C				
C40	30			SI 30			GP-30		5GA-Q3	
C41	30			SI 30			GP-30		5GA-Q3	
C42	6					C10V6C				
C43	200			1469-0002	D6-201	5R5T2	ED-200	MCB236	MS-32	10%
C44	200			1469-0002	D6-201	5R5T2	ED-200	MCB236	MS-32	10%
C45	200			1468-0002	D6-201	5W5T2	ED-200	MC236	1FM-32	
C46	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C47	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C48	2500			1467-0025	D6-252	1W5D25	ED-0025	MCB460	1FM-225	
C49	6					C10V6C				
C50	60									
C51	300			1469-0003	D6-301	5R5T3	ED-300	MCB241	MS-33	10%

PARTS LIST AND DESCRIPTIONS (Continued)
CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Olympic-Opta PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C52	200			1469-0002	D6-201	5R5T2	ED-200	MCB236	MS-32	10%
C53	200			1469-0002	D6-201	5R5T2	ED-200	MCB236	MS-32	10%
C54	50			SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C55	300			SI 300	D6-301	LT6T3	GP-300	UC-533	5GA-T3	
C56	300			SI 300	D6-301	LT6T3	GP-300	UC-533	5GA-T3	
C57	5000									
C58	1600			1467-0016		1W5D16			1FM-216	
C59	.01	250		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C60	400			1469-0004	D6-401	5R5T4		MCB243	MS-34	10%
C61	400			1469-0004	D6-401	5R5T4		MCB243	MS-34	10%
C62	.05	125		P288N-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C63	.002	250		P488N-002	D6-202	CUB6D2	GP-2000	GEM-622	6TM-D2	
C64	.02	125		P288N-02	DD-203	CUB4S2	ED-02	GEM-412	2TM-S2	
C65	80									
C66	20			SI 20	D6-200	LT6Q2	GP-20	UC-542	5GA-Q2	
C67	.1	125		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C68	.05	125		P288N-05	DF-503	CUB4S5		GEM-415	2TM-S5	
C69	50			SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C70	.01	250		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C71	.05	500		P688N-05	DF-503	CUB6S5		GEM-415	2TM-S5	
C72	5000			1464-005		1DR5D5		MCB463	MS-25	10%
C73	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C74	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C75	.01	250		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C76	500			SI 500	D6-501	LT6T5	GP-500	UC-535	5GA-T5	
C77	1000			SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	②
C78	500			BPD-0005	DD-501	BYA10T5	ED-500	UC-535	5GA-T5	
C79	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C80	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	

① Some versions may use 800mmf in this application.
② Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Olympic-Opta PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.5meg	1/2	PTG25113					Volume, Tap② 100K & 400K
B	Switch							Bandwidth (Push-Pull)
R2	5meg	1/2	PTG25115					Bass
R3	1meg	1/2	PTG25114					Treble

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Olympic-Opta PART No.	NOTES
R4	100Ω			
R5	200Ω			
R6	2000Ω			
R7	500K			
R8	10K	1		
R9	2000Ω			
R10	1meg			
R11	1000Ω 5%			
R12	1000Ω 5%			
R13	100Ω			
R14	20K			
R15	24K	1		
R16	1meg			
R17	1meg			
R18	2.5meg			
R19	1000Ω 5%			
R20	2000Ω			
R21	20K			
R22	50Ω			
R23	50K			
R24	30K			
R25	12meg			
R26	4meg			
R27	250K 5%			

ITEM No.	RATING OHMS	RATING WATT	Olympic-Opta PART No.	NOTES
R28	100K 5%			
R29	10meg			
R30	30K			
R31	30K			
R32	200K			
R33	100Ω			
R34	10K			
R35	500K			
R36	2000Ω			
R37	20K			
R38	500Ω			
R39	200K			
R40	100K			
R41	100K			
R42	1000Ω 5%			
R43	1meg			
R44	1200Ω	2		
R45	50K			
R46	10K			
R47	200Ω			
R48	2000Ω			
R49	300K			
R50	800Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Olympic-Opta PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	220V Tap @ 150V, 127V, 110V @ .53A	240V @ .074A	6.3V @ 2.9A		TRG25117 (760-01.21)					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Olympic-Opta PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	11K	170Ω Tap @ 16Ω, 8Ω	TRG25118 (1761-01.25)							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Olympic-Opta PART No.	QUAM PART No.	
SP1	8"	PM	6-8Ω	SKG25082		① Connect in series and phase.
SP2	3" X 5"	PM	6-8Ω	SKG25071 ①		
SP3	3" X 5"	PM	6-8Ω	SKG25071 ①		
SP4	3"	Electrostatic				
SP5	3"	Electrostatic				

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Olympic-Opta PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil						
L2	FM Ant. Trans.						
L3	RF Choke						Wound on 100Ω Resistor
L4	FM RF Coil						
L5	FM Osc. Coil						
L6	RF Choke						
L7	Trap Coil						
L8	IF Trap Coil						
L9	SW Ant. Coil						
L10	Loop Stick						
L11	SW Osc. Coil						
L12	BC Osc. Coil						
L13	LW Osc. Coil						
L14	1st FM IF Pri.						
L15	1st FM IF Sec.						
L16	2nd FM IF Assembly	TRG25110					
L17	3rd FM IF & 1st AM IF Assembly	TRG25111					
L18	Ratio Det. & 2nd AM IF Assembly	TRG25112					
L19	Line Choke						
L20	Line Choke						

RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	Olympic-Opta PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.069A	RFG25062 (250/c75)		60-950 ①	D-56 ②	① Selenium Type. Two required. ② Silicon Type

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Olympic-Opta PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		1.2A	FUG25037					

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Olympic-Opta PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M3						

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Olympic-Opta PART No.	JENSEN PART No.	WALCO PART No.	
M4			† W-93TPS or ♦ W-93DS	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Olympic-Opta PART No.	NOTES
M5	Dial Lamp	BUG25035	6-8V .3A
M6	Dial Lamp	BUG25035	6-8V .3A
M7	Pilot Lamp	BUG25087	15W 110V
M8	Tuning Cap.	CVG25116	AM (Ant. 10-550mmf, Osc. 12-470mmf)
M9	Tuning Unit	CVG25108	FM (Complete)
M10	Switch	PBG25109	Piano Keyboard Assemble (Complete)

CABINETS & CABINET PARTS

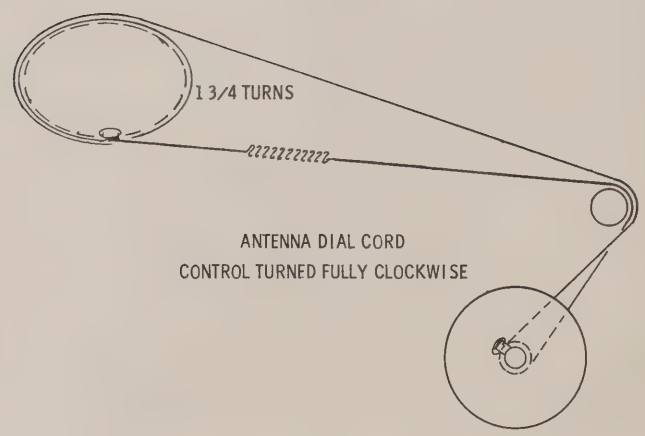
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

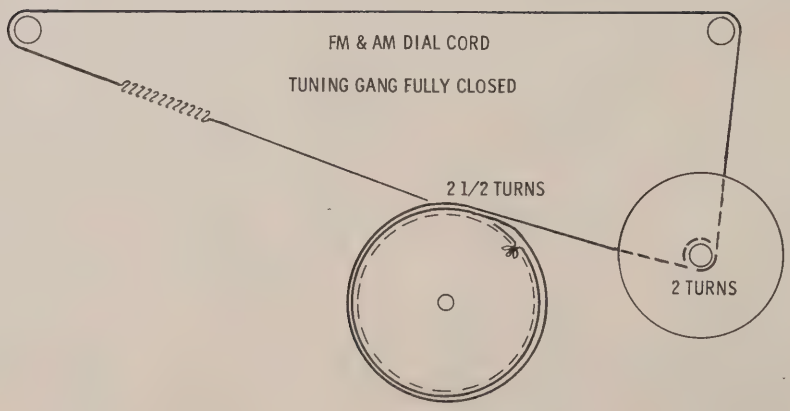
NAME	PART NO.	DESCRIPTION
Knob	KNG25042	Bass, Treble
Knob	KNG25043	Volume, Tuning
Knob	KNG25044	Antenna
Cabinet	CAG25122	
Dial Scale	DLG25024	
Keys	MPG25032	Plastic Keys For Keyboard
Keys	MPG25128	Plastic Keys For Keyboard, Tone Mixer Panel

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

BASS
TREBLE


1 3/4 TURNS
ANTENNA DIAL CORD
CONTROL TURNED FULLY CLOCKWISE


FM & AM DIAL CORD
TUNING GANG FULLY CLOSED
2 1/2 TURNS
2 TURNS

PHOTOFACT* Folder

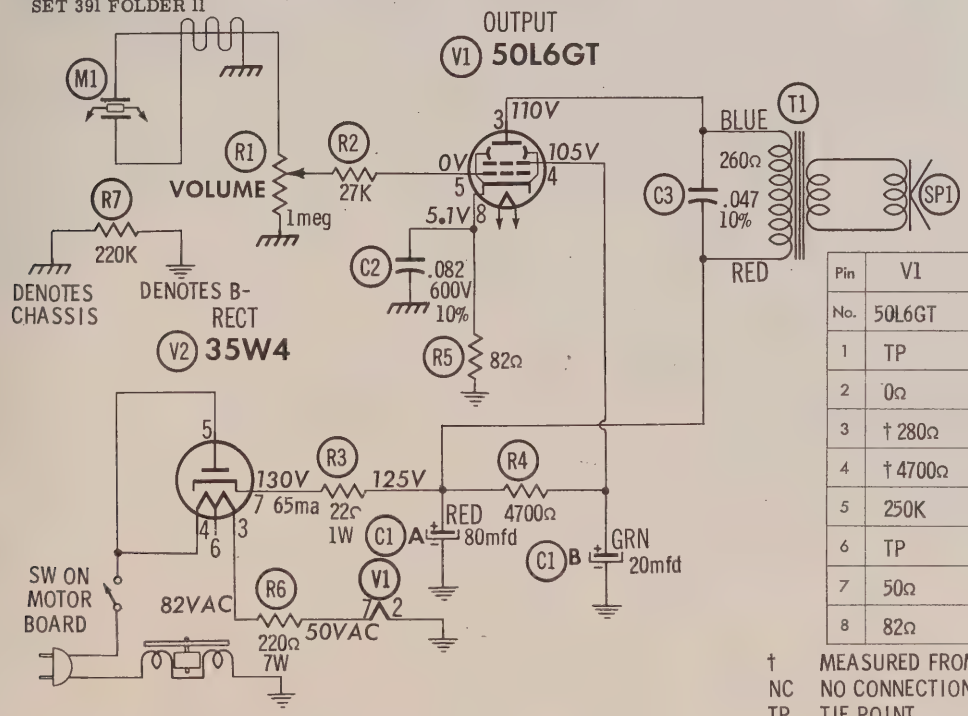
*TRADE MARK

RCA VICTOR MODELS 9ED1HE, 9ED1JF, 9ED31K, 9ED31L (Ch.RS-170A, RS-170C)

RCA VICTOR MODELS 9ED1HE, 9ED1JF, 9ED31K, 9ED31L (Ch.RS-170A, RS-170C)

TRADE NAME	RCA Victor Models 9-ED-1HE, 9-ED-1JF (Ch. RS-170C); 9-ED-31K, 9-ED-31L (Ch. RS-170A)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, New Jersey
TYPE SET	AC Operated Phono Amplifier With 2 Speed Automatic Record Changer
TUBES (Two)	Types 50L6GT Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .27 Amp. @ 117 Volts AC (28 Watts Without Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE RCA MODEL RP-208-4 AND RP-208-5—PHOTOFACT SET 391 FOLDER 11



Pin No.	V1 50L6GT	V2 35W4
1	TP	NC
2	0Ω	NC
3	† 280Ω	270Ω
4	† 4700Ω	300Ω
5	250K	300Ω
6	TP	290Ω
7	50Ω	20K(Min)
8	82Ω	

† MEASURED FROM PIN 7 OF V2
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	50L6GT	

ITEM No.	USE	TYPE	NOTES
V2	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	105343	PRS150V8020	BBRT44215	TCT3116	TDLT-4	FMT-315	TVA-2460
B	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.082	600	104962							10%
C3	.047	400	73553					GEM-1615		10%

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	105276 ①	B-70	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

① Part #104845 used in chassis RS-170A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R2	27K		502327	
R3	22Ω	1	512022	
R4	4700Ω		502247	

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R5	82Ω		502082	
R6	220Ω	7	104964	
R7	220K		502422	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2800Ω	3-4Ω	105174	Z1101	A-3025	AU-605	A-3332	24S53	S-12X	

SPEAKER

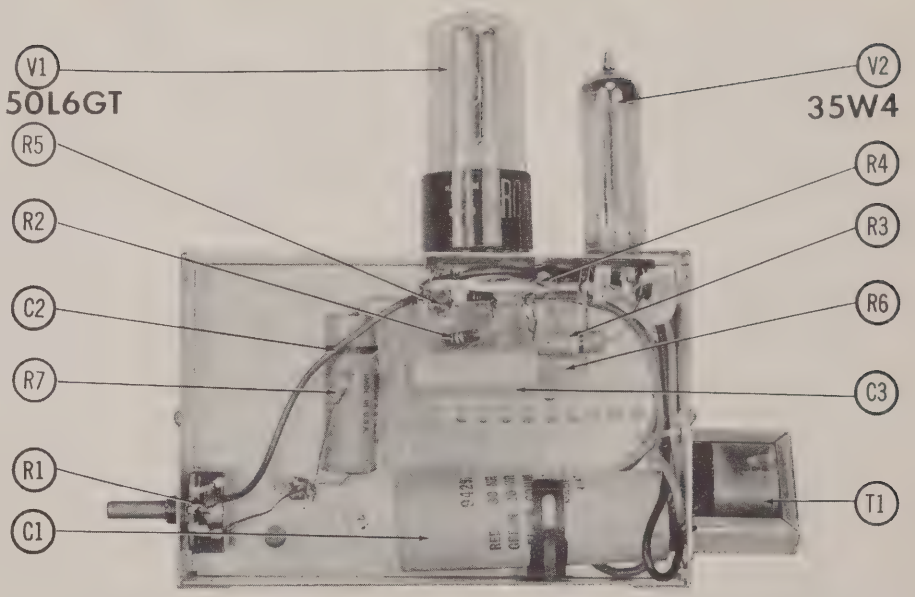
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	105280	4A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA Victor PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	103330	414-1	N8-1			

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

CHASSIS—BOTTOM VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	RCA Victor PART No.	JENSEN PART No.	WALCO PART No.	
M2	103331	† CRA-55LP or ♦ CRA-55LPD	† W64MGS or ♦ W64MGD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	105277	Volume, Charcoal, Model 9-ED-1JF
Knob	105270	Volume, Spruce Green, Model 9-ED-1HE
Knob	104801	Volume, Antique White, Model 9-ED-31K
Knob	104799	Volume, Aqua, Model 9-ED-31L
Cabinet	Y4259	Charcoal, Model 9-ED-1JF
Cabinet	Y4258	Spruce Green, Model 9-ED-1HE
Cabinet	X4218	Brown & Tan, Model 9-ED-31K
Cabinet	X4217	Two Tone Blue, Model 9-ED-31L
Handle	104657	Antique White, Model 9-ED-31L
Handle	104838	Aqua, Model 9-ED-31K

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

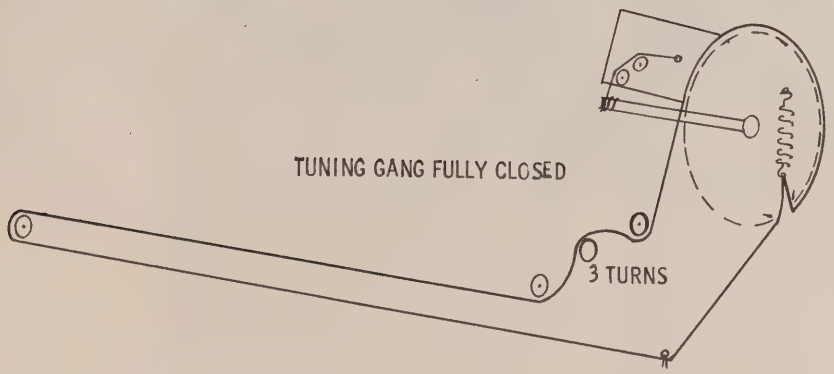
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SILVERTONE MODELS 8200, 8202 (Ch. 132.43200, 132.43201)

SILVERTONE MODELS 8200,
8202 (Ch. 132.43200, 132.43201)

SILVERTONE MODELS 8200,
8202 (Ch. 132.43200, 132.43201)

TRADE NAME	Silvertone Models 8200, 8202, (Ch. 132.43200, 132.43201)		
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois		
TYPE SET	AC Operated FM-AM Receiver		
TUBES (Six)	Types 6BQ7A FM RF Amp.-FM Conv., 12BA6 1st FM IF Amplifier, 12BE6 AM Converter, 12BA6 2nd FM IF Amp.-1st AM IF Amp., 19T8 Ratio Det.-AM Det.-AVC-AF Amp., 50C5 Output		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.33 Amp. @ 117 Volts AC (32 Watts)
TUNING RANGE—BROADCAST	540-1650KC	FREQ. MOD.	88-108MC



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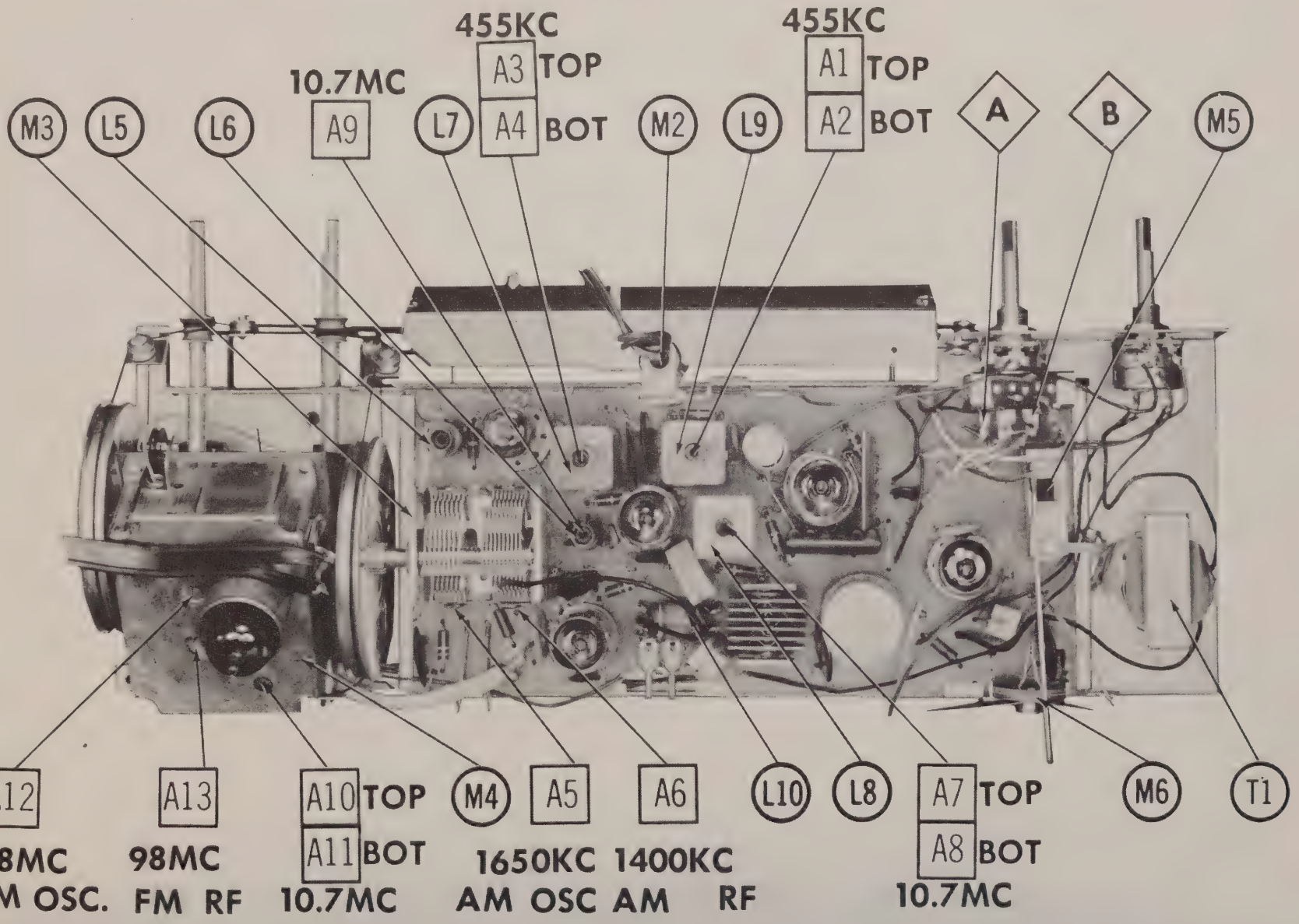
H407



CHASSIS-TOP VIEW ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	High side to pin 7 (grid) of 12BE6 (V3). Low side to B-.	455KC (400~ Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1650KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01mfd	High side to pin 1 (grid) of 12BA6 (V4). Low side to B-.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point (A). Common to B-.	A7	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (B). Common to point (C).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	"	High side to pin 1 (grid) of 12BA6 (V2). Low side to B-.	"	"	"	DC probe to point (A). Common to B-.	A9	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01mfd	High side to pin 1 (grid) of 12BA6 (V4). Low side to B-.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to B-.	A7	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1
5.	"	"	"	"	"	Vert. Amp. to point (B). Low side to B-.	A8	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.
6.	"	High side to pin 1 (grid) of 12BA6 (V2). Low side to B-.	"	"	"	Vert. Amp. to point (A). Low side to B-.	A9	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1. Reconnect stabilizing capacitor C2.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	.01mfd	Across FM antenna terminals	10.7MC (Unmod.)	FM	Tuning gang fully open	DC probe to point (A). Common to B-.	A10, A11	Adjust for maximum deflection.
8.	Two 150Ω Carbon Resistors	"	98MC	"	98MC	"	A12, A13	"

FIG. 1

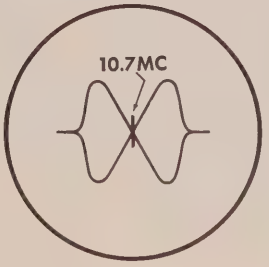
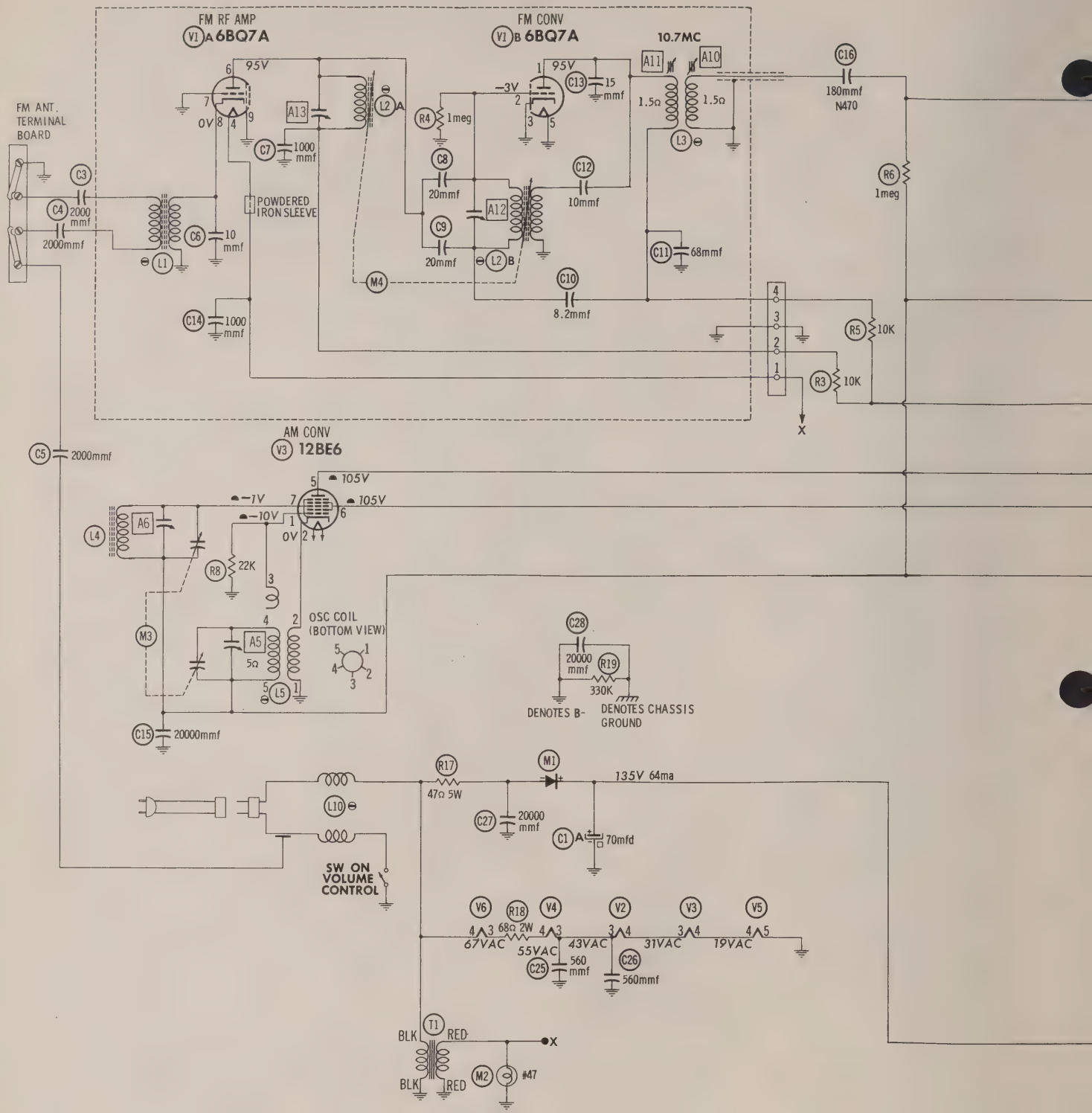


FIG. 2

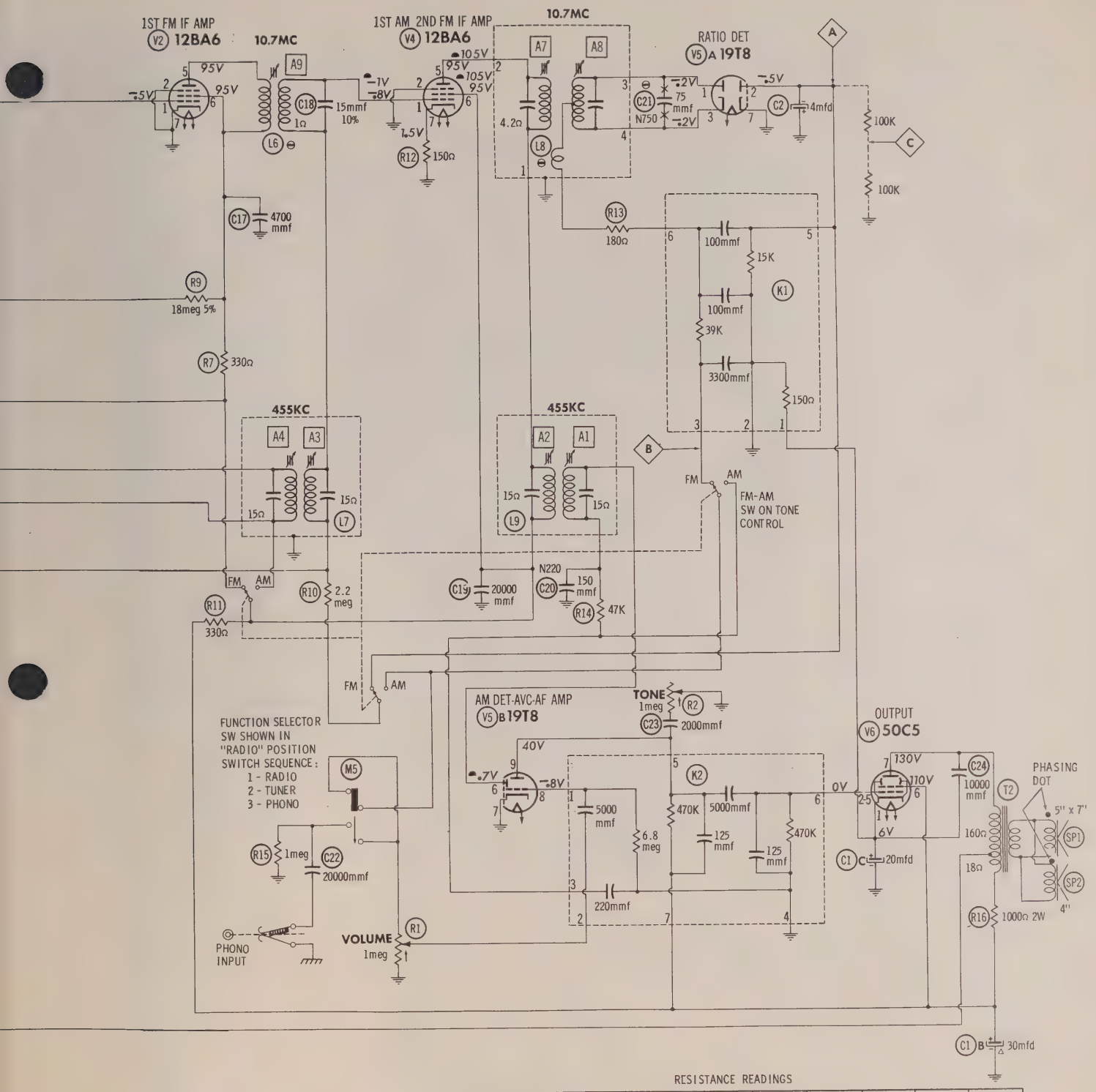


1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

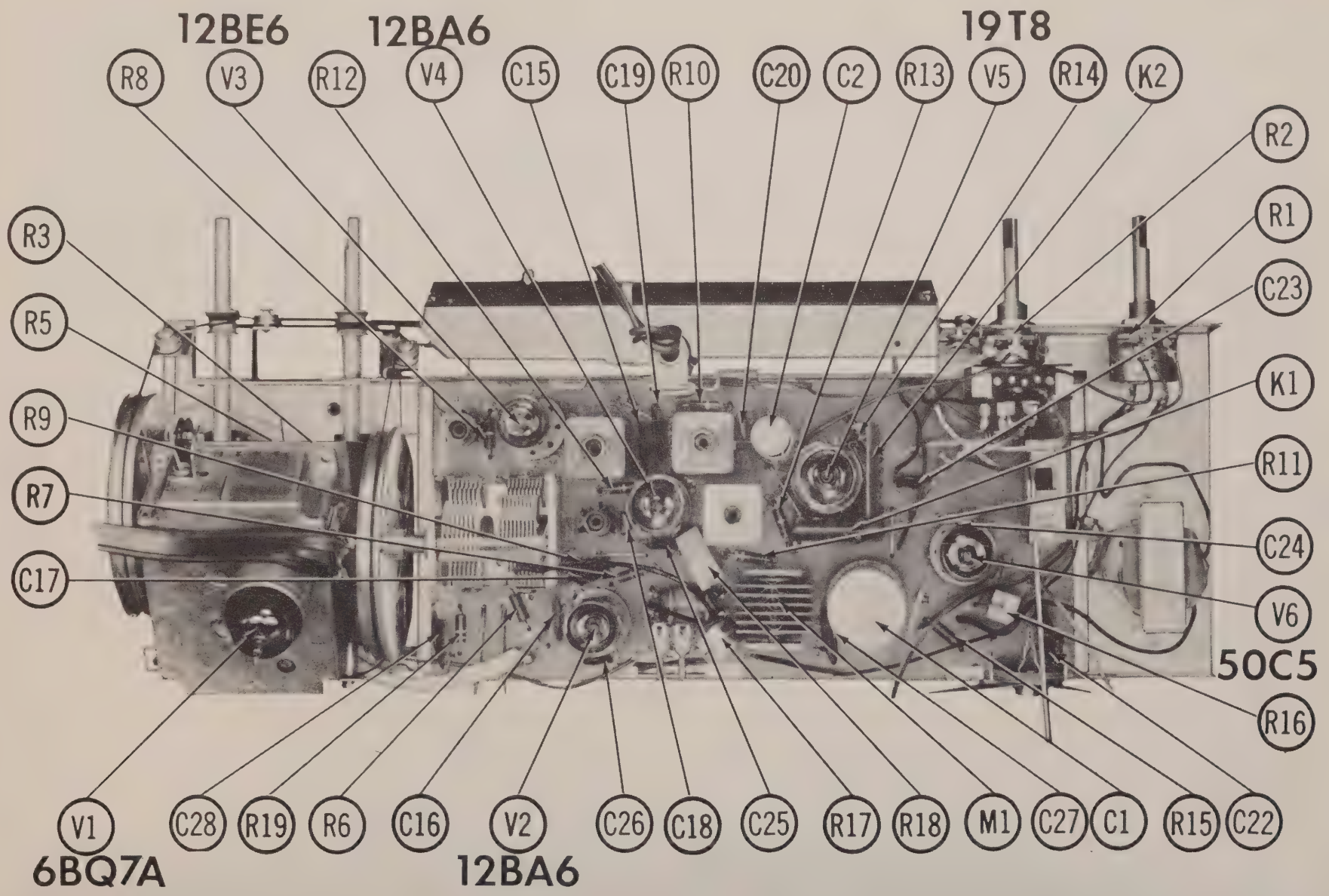


RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7	†11K	1meg	0Ω	.8Ω	0Ω	†11K	0Ω	.1Ω	0Ω
V2	12BA6	3.2meg	0Ω	43Ω	31Ω	†1700Ω	†1700Ω	0Ω		
V3	12BE6	22K	.4Ω	31Ω	19Ω	†▲1300Ω	†▲1300Ω	▲3.2meg		
V4	12BA6	▲3.2meg 2.2meg	0Ω	43Ω	55Ω	†1300Ω	†1300Ω	150Ω		
V5	19T8	1meg	15K	1meg	19Ω	0Ω	▲1meg	0Ω	6.8meg	†470K
V6	50C5	150Ω	470K	110Ω	150Ω	470K	†1000Ω	†160Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM OUTPUT OF M1
▲ MEASURED IN "AM" POSITION

398-11



CHASSIS TOP VIEW - CAPACITOR & RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. - FM Conv.	6BQ7A	
V2	1st FM IF Amplifier	12BA6	
V3	AM Conv.	12BE6	
V4	2nd FM IF Amplifier-1st AM IF Amplifier	12BA6	
V5	Ratio Det. - AM Det. - AVC - AF Amplifier	19T8	
V6	Output	50C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■70	150	43711-4	PRS150/25V 8040/20	BBRT8415C	PFP311.12	CDB-T-1015	FMT-333	R2585*
B	▲30	150							
C	20	25							
C2	4	50	45238-1	PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1402

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

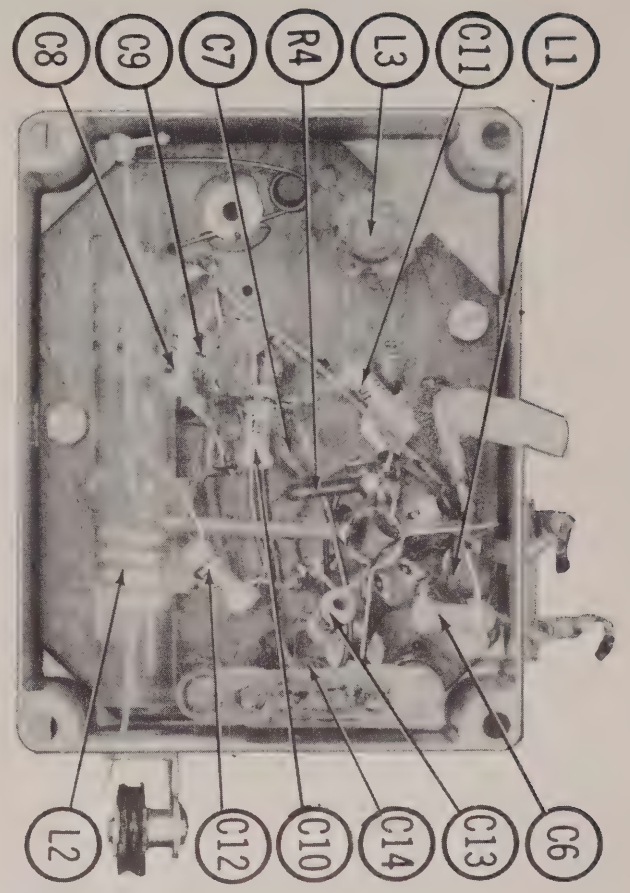
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	2000		41135-202	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C4	2000		41135-202	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C5	2000		41135-202	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C6	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C7	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C8	20			SI 20	D6-200	LT6Q2	GP-20	UC-542	5GA-Q2	
C9	20			SI 20	D6-200	LT6Q2	GP-20	UC-542	5GA-Q2	
C10	8.2			NPO-SI 8.2		C10V82C	TCO-8.2			
C11	68			SI 68	D6-680	LT6Q68	GP-68	UC-5468	5GA-Q68	
C12	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C13	15			SI 15	D6-150	LT6Q15	GP-15	UC-5415	5GA-Q15	
C14	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C15	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C16	180		43957-11							N470
C17	4700		43674-6	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C18	15		43957-10	NPO-DI 15	DD-150	L10Q15	GP-15	UC-5415	5GA-Q15	10%
C19	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C20	150		43957-2							N220
C21	75		40355-33	N750-DI 75	TCN-75	C10Q75U	TC7-75	NT-5447	5TCU-Q75	①
C22	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C23	2000		43674-4	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C24	10000		43674-1	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	560		43674-12	DI-00056	DD-561	L10T56	ED-560	UC-5356	5GA-T56	
C26	560		43674-12	DI-00056	DD-561	L10T56	ED-560	UC-5356	5GA-T56	
C27	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C28	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	

① Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	44500-3	B-70-S	A47-1meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	
R2	1meg	½	45223					Tone & AM-FM Switch

CHASSIS-FM RF SUB ASSEMBLY



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SILVERTONE PART No.	NOTES
R3	10K		20061-103	
R4	1meg		43687-105	
R5	10K		20061-103	
R6	1meg		43687-105	
R7	330Ω		43687-331	
R8	22K		43687-223	
R9	18meg 5%		43689-186	
R10	2.2meg		43689-225	
R11	330Ω		43687-331	
R12	150Ω		43689-151	
R13	180Ω		43689-181	
R14	47K		43687-473	
R15	1meg		43687-105	
R16	1000Ω	2	44448-1	
R17	47Ω	5	45237	
R18	68Ω	2	44448-3	
R19	330K		43687-334	

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V	6.3V @ .400A		45500-1	F5511 ①	P-2964		P-6465	21F08	F-13X

① Drill new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	2000Ω	2.1Ω	43393-3					24S50A		

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	5" X 7"	PM	3-4Ω	45251 ①	57A21 ①	① Parallel and phase
SP2	4"	PM	6-8Ω	44088 ①	4A06Z8.1 ①	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.						Note 1
L2A	FM RF Coil						Note 1
B	FM Osc. Coil						Note 1
L3	1st FM IF						Note 1
L4	Loop Stick	45216					Includes cabinet back and line cord
L5	AM Osc. Coil						Note 2
L6	2nd FM IF						Note 3
L7	1st AM IF	44282-1	16-6780	BC-356	13-PC9	RF-4	
L8	Ratio Det.	45240-1	17-3492		1465-PC		
L9	2nd AM IF	44282-1	16-6780	BC-357	13-PC10	RF-4	
L10	Line Choke						Note 4

Note 1. Part of FM Tuner Assembly M4.
Note 2. Part #43644-1 used in Chassis 132. 43200.
Note 3. Part #45241-1 used in Chassis 132. 43200.
Note 4. Part #24308-2 used in Chassis 132. 43200.

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	FM Audio Circuit	100mmf, 100mmf, 3300mmf, 150Ω, 39K, 15K	45228	Erie 706-07
K2	Audio Coup. Net.	5000mmf, 220mmf, 125mmf, 125mmf, 5000mmf, 6.8meg, 470K, 470K	43743-2	Aerovox PA-512 Centralab PC-158 Erie 1408-02 Sprague DT-5

RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA SILVERTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.064A	44465-3	1101A	RS100A	100A5 M150	Selenium Type Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M2	Dial Lamp	23849	#47
M3	Tuning Cap.	45139	AM, 2 Gang (Ant. 15-270mmf)
M4	FM Tuning Ass'y	45158	
M5	Switch	45239	Phono-Radio (Slide Type, DPDT)
	AM Dial Pointer	45217-1	
	FM Dial Pointer	45218-1	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	45203-48	On-Off-Volume, Model 8200, Brown
Knob	45203-17	On-Off-Volume, Model 8202, Ivory
Knob	45204-48	AM-FM, Tone, Model 8200, Brown
Knob	45204-17	AM-FM, Tone, Model 8202, Ivory
Knob	45205-48	AM Tuning, Model 8200, Brown
Knob	45205-17	AM Tuning, Model 8202, Ivory
Knob	45206-48	FM Tuning, Model 8200, Brown
Knob	45206-17	FM Tuning, Model 8202, Ivory
Cabinet	45170-48	Brown, Model 8200
Cabinet	45170-17	Ivory, Model 8202
Dial Crystal	45191	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder

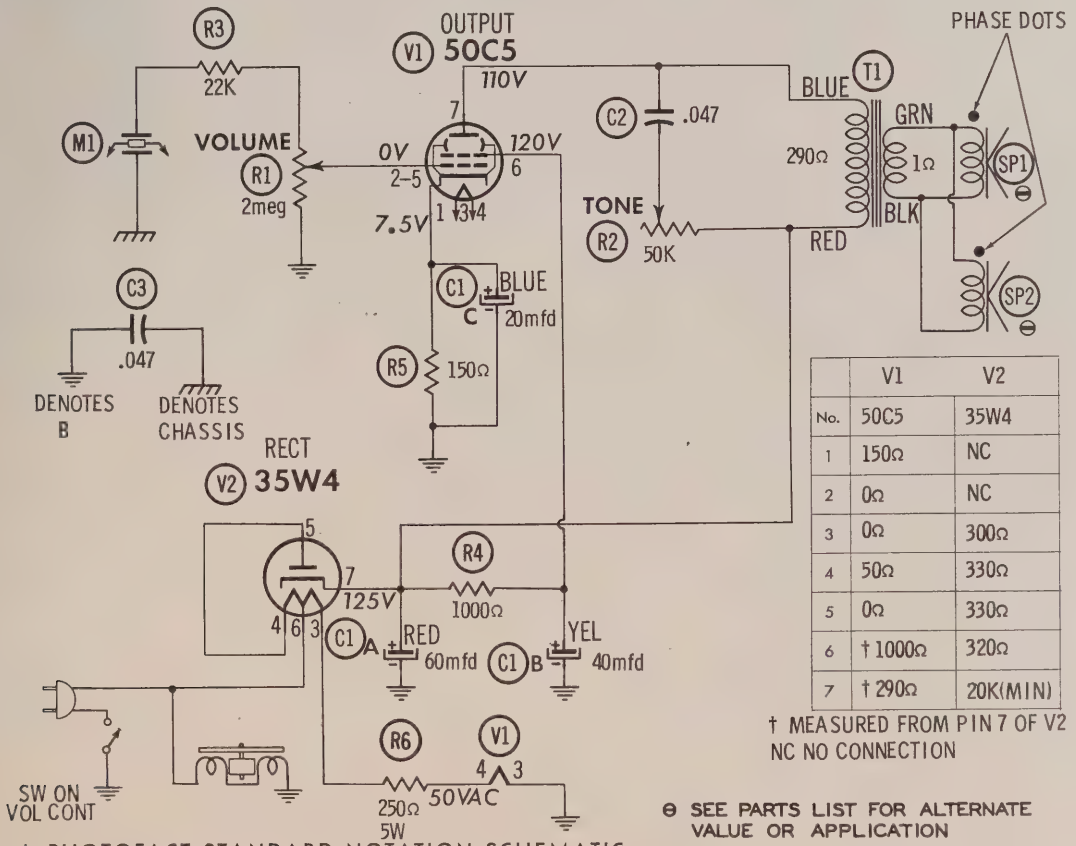
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SILVERTONE MODELS 8236, 8238 (Ch. 528.59030, 567.59030)

SILVERTONE MODELS 8236,
8238 (Ch. 528.59030, 567.59030)

TRADE NAME	Silvertone Models 8236, 8238 (Ch. 528.59030)
SUPPLIER	Sears Roebuck and Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	AC Operated Phono Amplifier with 4 Speed Manual Record Player (Operation on 45 RPM is Automatic)
TUBES (Two)	Types 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .27 Amp. @117 Volts AC (27 Watts Less Motor)

RECORD PLAYER-SILVERTONE 528.57020, 528.57022, 528.57030, 528.57032



	V1	V2
No.	50C5	35W4
1	150Ω	NC
2	0Ω	NC
3	0Ω	300Ω
4	50Ω	330Ω
5	0Ω	330Ω
6	† 1000Ω	320Ω
7	† 290Ω	20K(MIN)

† MEASURED FROM PIN 7 OF V2
NC NO CONNECTION

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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SET 398 FOLDER 12

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V2	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Silvertone PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	18-51-5	PRS150/25V	BBRT8415C	WQ230		CST-534	R2451*
B	40	150		8040/20					
C	20	20							

*Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Silvertone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	400	16-47343	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C3	.047	400	16-47343	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Silvertone PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	24-261-0	B-75				Volume
B	Switch			KB-1				
R2	50K	½	24-141-2	B-31				Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Silvertone PART No.	NOTES
	OHMS	WATT		
R3	22K		60-22301	
R4	1000Ω		60-10201	

ITEM No.	RATING		Silvertone PART No.	NOTES
	OHMS	WATT		
R5	150Ω		60-15101	
R6	250Ω	5	61-104	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Silvertone PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1600Ω	2Ω	80-430-1	Z1100 ①			A3865①	24S53		①Drill one new mounting hole.

SPEAKER

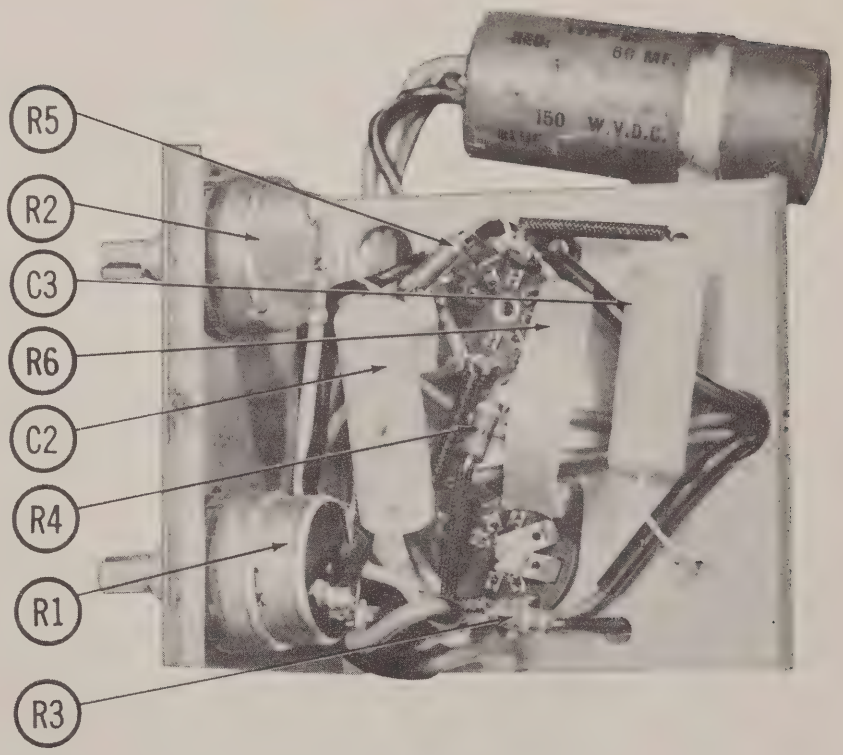
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Silvertone PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	011870 ①②	4A06	①Parallel and Phase
SP2	4"	PM	3-4Ω	011870①②	4A06	②Alternate Part # 33-256-4

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	Silvertone PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	33-264-0	414-2	N8-2			

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW:

CHASSIS—BOTTOM VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	Silvertone PART No.	JENSEN PART No.	WALCO PART No.	
M2	83-1145	† CRA-552 or ♦ CRA-552D	† W64AGS or ♦ W64AGD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	52-764-0	On-Off-Volume and Tone
Cabinet	42-1-2	Model 8238 (Portable)
Cabinet	42-32-2	Model 8236 (Table Model)

WIRING DATA

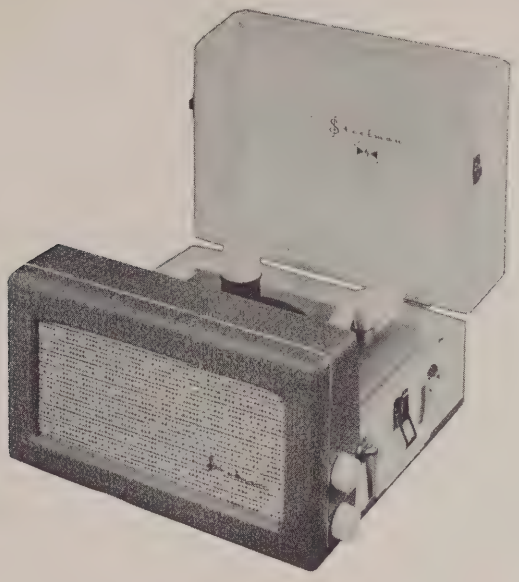
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

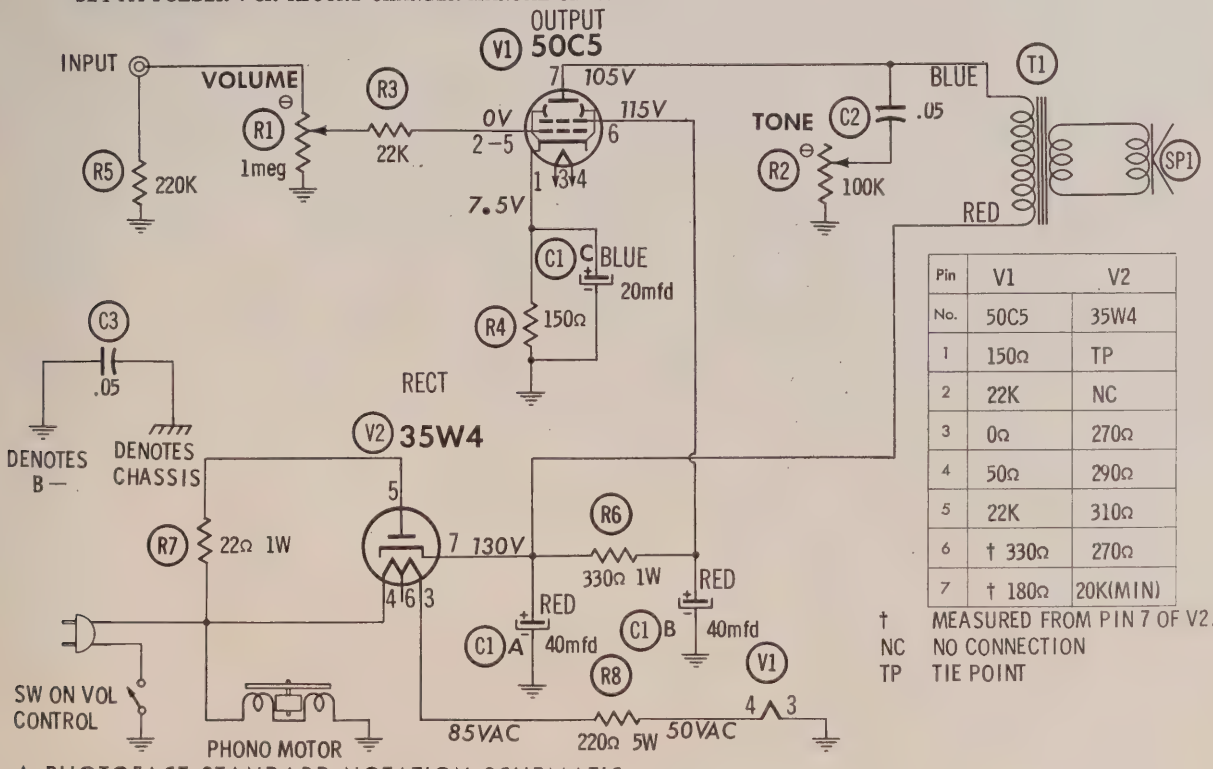
STEELMAN MODEL 1A19 Series 2

STEELMAN MODEL
1A19 Series 2



TRADE NAME	Steelman Model 1A19 Series 2
MANUFACTURER	Steelman Phono & Radio Co., Inc., 12-30 Anderson Ave., Mount Vernon, N.Y.
TYPE SET	AC Operated Phono Amplifier With 45RPM Record Changer
TUBES (Two)	Types 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .27 Amp. @ 117 Volts AC (26 Watts Without Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR RCA MODEL RP-190 Series - PHOTOFACT SET 144 FOLDER 7 OR RECORD CHANGER MANUAL CM-4.



Pin No.	V1 50C5	V2 35W4
1	150Ω	TP
2	22K	NC
3	0Ω	270Ω
4	50Ω	290Ω
5	22K	310Ω
6	† 330Ω	270Ω
7	† 180Ω	20K(MIN)

† MEASURED FROM PIN 7 OF V2.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V2	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA STEELMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	583020	PRS150V40	BBRT44215	TCT3116	TDLT-4	FMT-312	TVA-3448
B	40	150		4020					
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA STEELMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200		P288N-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C3	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA STEELMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	360081	B-70	A47-1meg-Z	Q13-137	U53	Volume - Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	100K	½	360255	B-40	A47-100K-S	Q11-128	U41	Tone - Note 2
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Part #360281 may be used in some versions.
Note 2. Part #360250 may be used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	STEELMAN PART No.	NOTES
R3	22K			
R4	150Ω			
R5	220K			

ITEM No.	RATING OHMS	RATING WATT	STEELMAN PART No.	NOTES
R6	330Ω	1		
R7	22Ω	1		
R8	220Ω	5	510007	

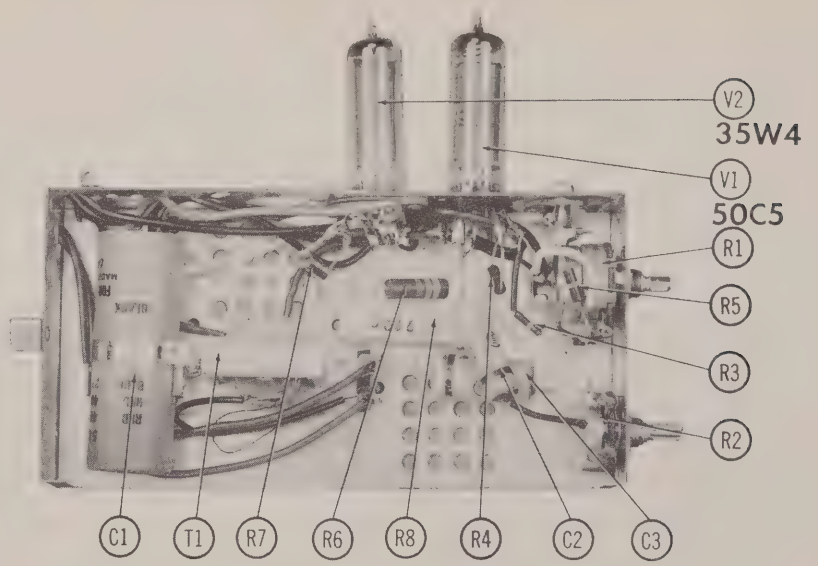
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA STEELMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2600Ω	3-4Ω	430202	Z1101	A-3025		A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA STEELMAN PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	404001	4A07	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA STEELMAN PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	322508	414-1	N8-1			

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA STEELMAN PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	392107	†CRA-55LP or ♦CRA-55LPD	†W64MGS or ♦W64MGD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	270146	On-Off-Volume (White)
Knob	270147	Tone (White)
Case	230600	Red and white

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

*TRADE MARK

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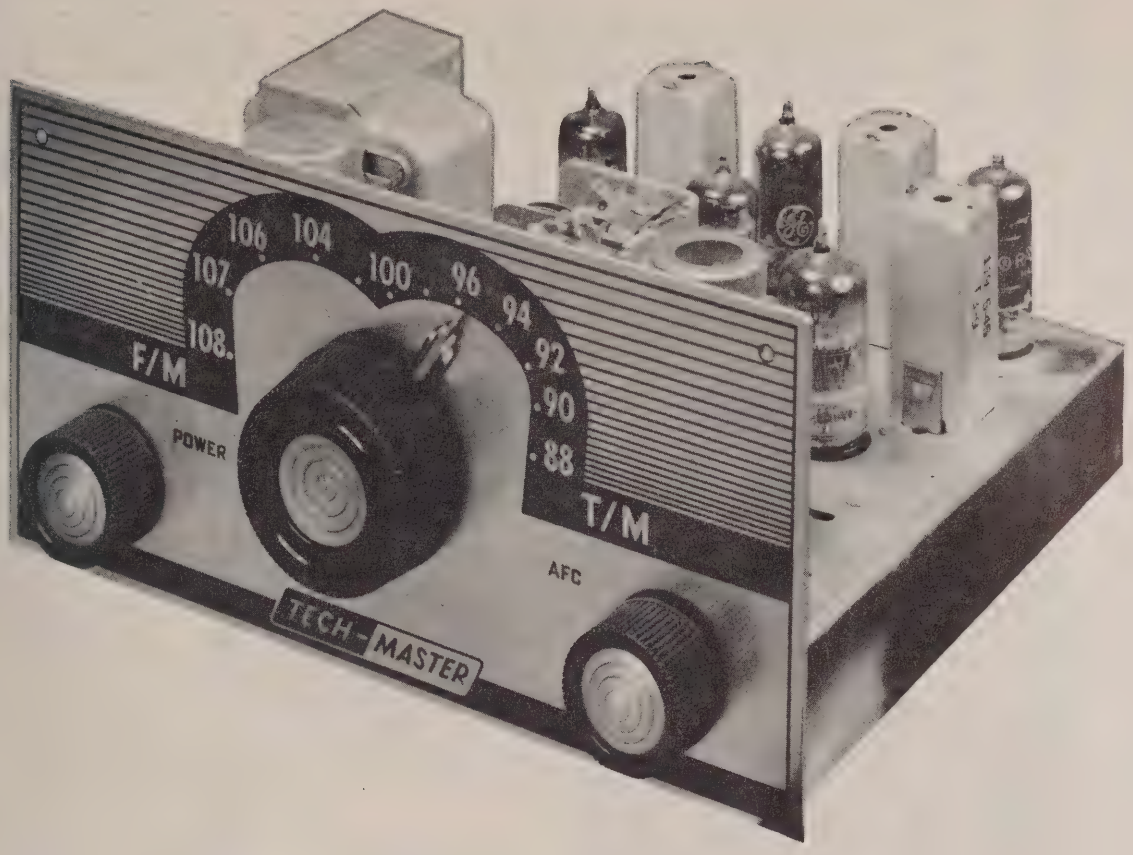
TECH-MASTER MODEL FM-18

TECH-MASTER
MODEL FM-18



TECH-MASTER
MODEL FM-18

TRADE NAME	Tech-Master Model FM-18	
MANUFACTURER	Tech-Master Corp., 75 Front St., Brooklyn 1, N.Y.	
TYPE SET	AC Operated FM Tuner	
TUBES (Six)	Types 12AT7 RF Amp.-Mixer, 12AT7 Osc.-AFC, 6BA6 1st. IF Amplifier, 6AU6 2nd. IF Amplifier, 6AL5 Ratio Detector, 6C4 AF Amplifier	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .22 Amp. @ 117 Volts AC (21 Watts)
TUNING RANGE - FREQ. MOD. 88-108MC		

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H371

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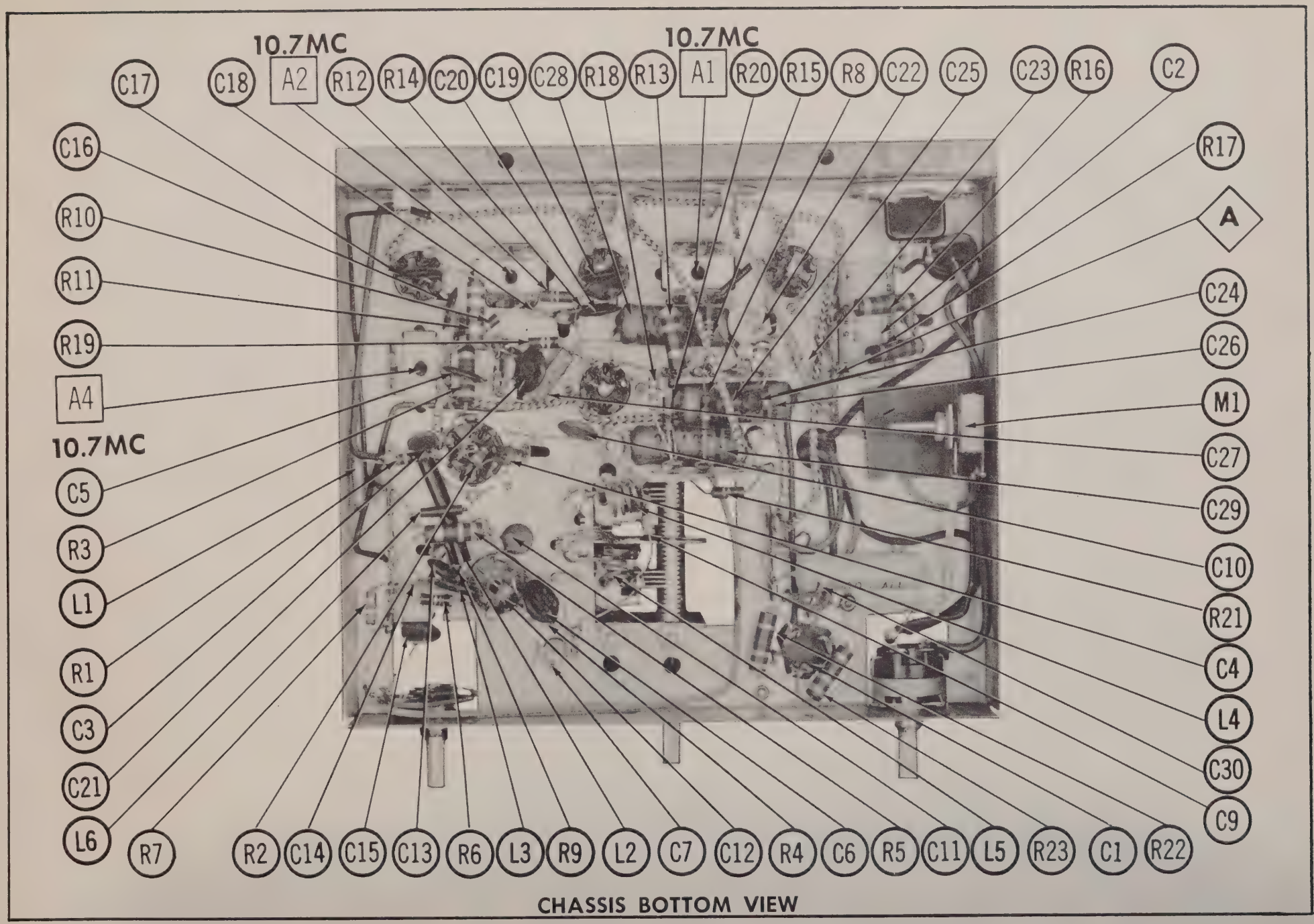


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amp. -Mixer	12AT7	
V2	Osc. -AFC	12AT7	
V3	1st. IF Amp.	6BA6	

ITEM No.	USE	TYPE	NOTES
V4	2nd. IF Amp.	6AU6	
V5	Ratio Detector	6AL5	
V6	AF Amplifier	6C4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Tech-Master PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	CE119C	AFH3-10	C0090	FP311.5	TMT-9	T-045	TVL-3442
B	▲40	150							
C	40	150							
C2	5	50	①	PRS50V5	BBR5-50	TC30	TD-5-50	MT-0504	TVA-1303

① Some versions may use 4mfd (Part #CE112A) in this application.

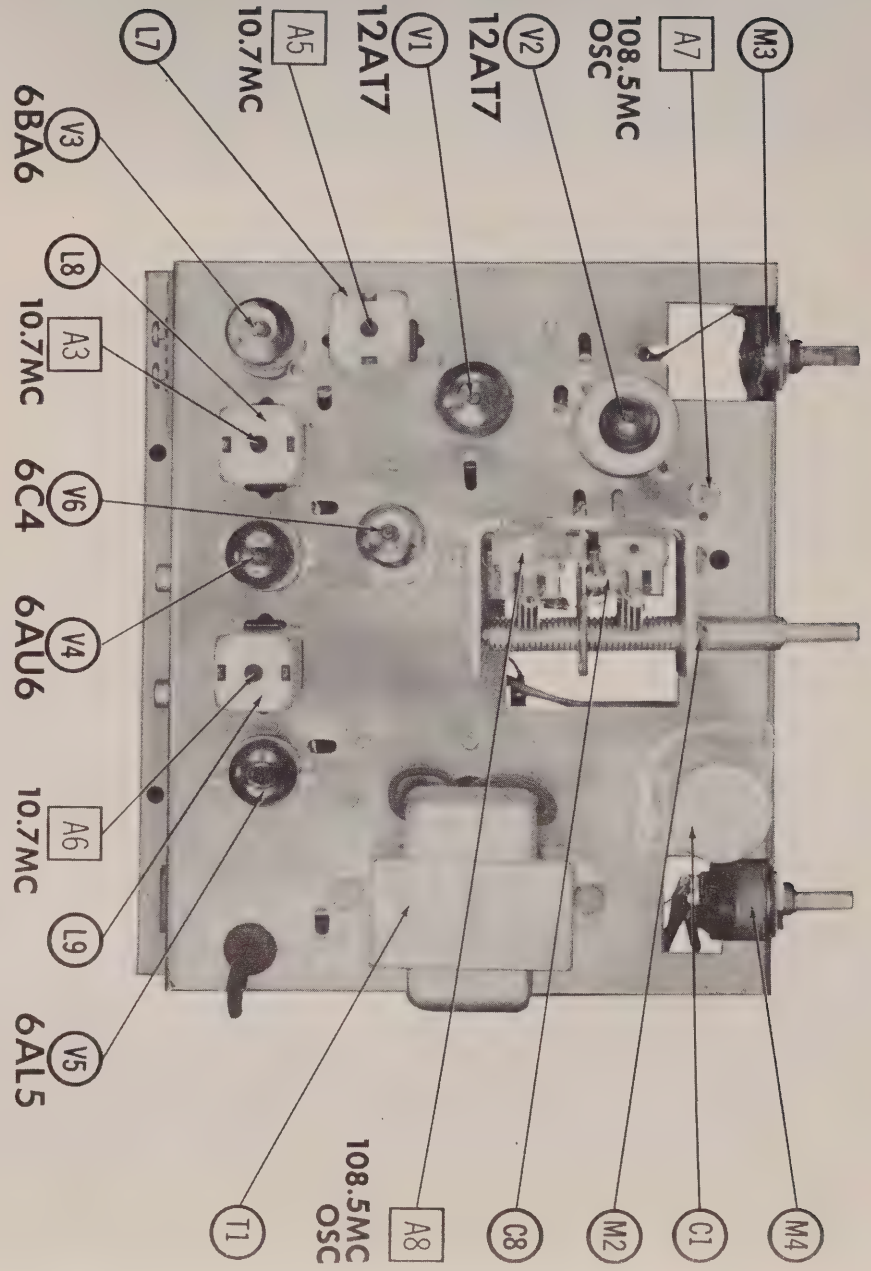
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Tech-Master PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C4	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C5	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C6	100			N750-D1 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750
C7	1-8		CV13				532-B			
C8	10			N750-S1 10	TCN-10	CTA6Q1U	TC7-10	NT-541	5TCU-Q1	N750
C9	2.2			NPO-S1 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C10	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C11	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C12	5			NPO-S1 5.0	TCZ-4R7	C10V5C	TCO-5	ZT-555	5TCCB-V5	
C13	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C14	130				TCN-130		TC7-130			N750 5%①
C15	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C16	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C17	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C18	47	2000								10%
C19	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C20	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C21	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C22	130				TCN-130		TC7-130			N750 5%①
C23	130				TCN-130		TC7-130			N750 5%①
C24	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C25	1500			SI 1500	D6-152	LT6D15	GP-1500	UC-5215	5GA-D15	
C26	.05	200		P288N-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C27	220			1468-00022	D6-221	5W5T22	ED-220		1FM-322	②
C28	.05	200		P288N-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C29	.05	200		P288N-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C30	.047	400		P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	

①Some versions may use 120mmf in this application.
② Not used in some versions.

CHASSIS—TOP VIEW



ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.005mfd	High side to RF stator lug of tuning gang. Low side to chassis.	10.7MC (Unmod)	Tuning gang fully closed	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5	Adjust for maximum deflection.
2.	"	"	"	"	DC probe to point (B). Common to chassis.	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 1 and 2.

IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	.005mfd	High side to RF stator lug of tuning gang. Low side to chassis.	10.7MC (450KC Swp)	Tuning gang fully closed.	Vert. Amp. to point (A). Low side to chassis.	A1, A2, A3, A4, A5	Disconnect stabilizing capacitor (C2). Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
2.	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A6	Reconnect C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A1 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	.005mfd	Across FM antenna terminals.	87.5MC (Unmod)	Tuning gang fully closed.	DC probe to point (A). Common to chassis.	L5	Preset A7 to mid-point of its range, and A8 to MINIMUM capacity. Adjust L5 for maximum deflection by compressing or expanding coil turns.
4.	"	"	108.5MC	Tuning gang fully open.	"	A7	Adjust for maximum deflection.
5.	"	"	87.5MC	Tuning gang fully closed.	"	L4	Adjust for maximum deflection by compressing or expanding coil turns.
6.	"	"	108.5MC	Tuning gang fully open.	"	A8	Adjust for maximum deflection.

FIG. 1

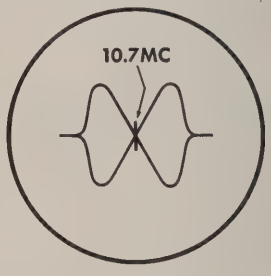
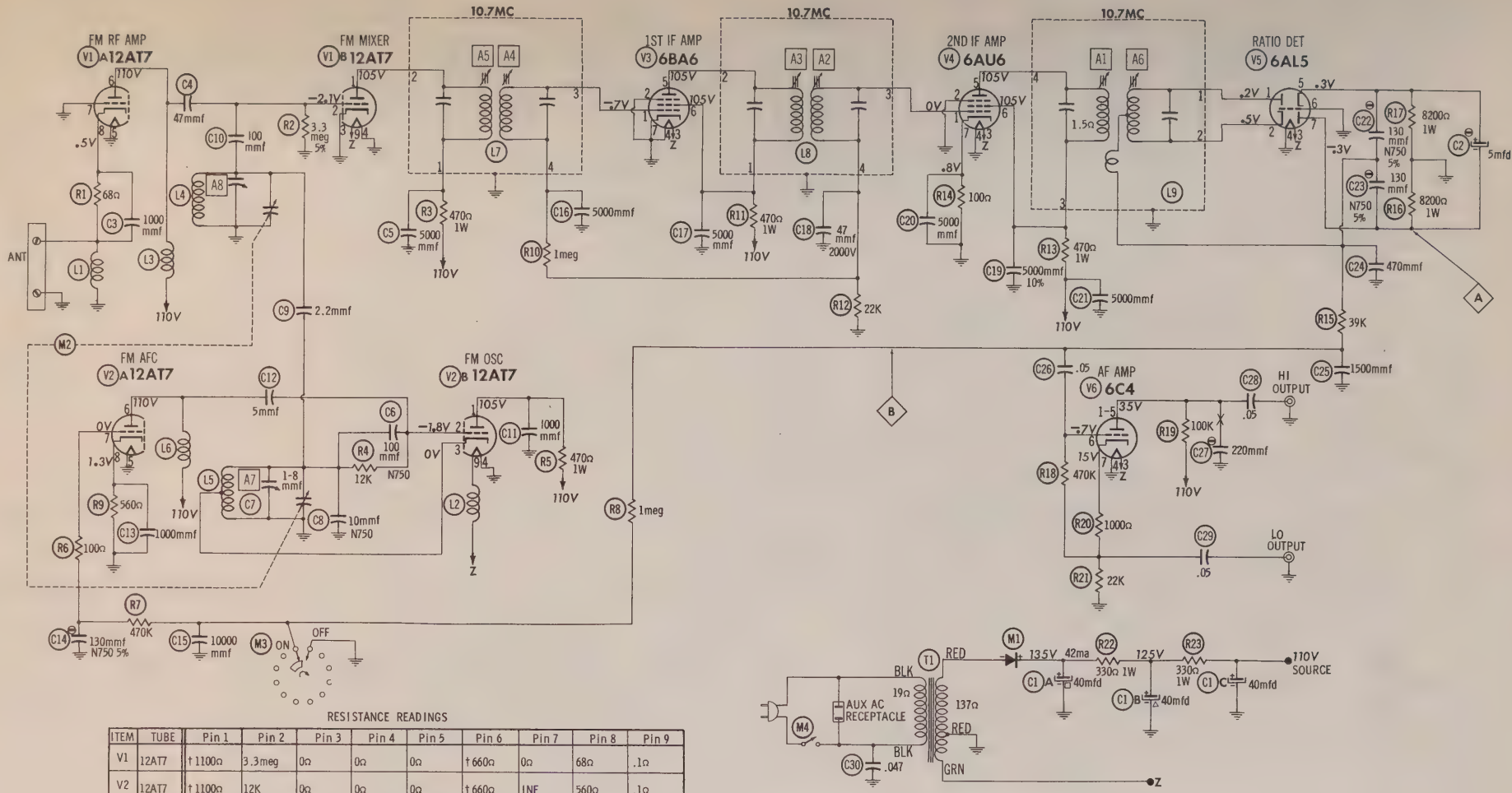


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	†1100Ω	3.3meg	0Ω	0Ω	0Ω	†660Ω	0Ω	68Ω	.1Ω
V2	12AT7	†1100Ω	12K	0Ω	0Ω	0Ω	†660Ω	INF	560Ω	.1Ω
V3	6BA6	1meg	0Ω	.1Ω	0Ω	†1100Ω	†1100Ω	0Ω		
V4	6AU6	22K	0Ω	.1Ω	0Ω	†1100Ω	†1100Ω	100Ω		
V5	6AL5	INF	INF	.1Ω	0Ω	8200Ω	0Ω	8200Ω		
V6	6C4	†100K	NC	.1Ω	0Ω	†100K	490K	23K		

† MEASURED FROM OUTPUT OF M1.
▪ MEASURED FROM PIN 7 OF V6.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Tech-Master PART No.	NOTES
R1	68Ω			
R2	3.3meg ½			
R3	470Ω	1		
R4	12K			
R5	470Ω	1		
R6	100Ω			
R7	470K			
R8	1meg			
R9	560Ω			
R10	1meg			
R11	470Ω	1		
R12	22K			

ITEM No.	RATING OHMS	RATING WATT	Tech-Master PART No.	NOTES
R13	470Ω	1		
R14	100Ω			
R15	39K			
R16	8200Ω	1		
R17	8200Ω	1		
R18	470K			
R19	100K			
R20	1000Ω			
R21	22K			
R22	330Ω	1		
R23	330Ω	1		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Tech-Master PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ②.21A	120V ②.042A	6.3V ②1.6A	TP18	P9102 ①	P-3045 ①		PA8421 ①	22R12 ①	R-30X①

① Drill new mounting hole.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Tech-Master PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	L106			4586		.34 Microhenry
L2	Fil. Choke	L204-1	19-1000	BC-561	4602		1 Microhenry
L3	RF Choke	L108					2 Microhenries
L4	Mixer Coil	L109					
L5	Osc. Coil	L110					
L6	RF Choke	L108					2 Microhenries
L7	Input IF	T8-9	16-3487	FM-254	1463		
L8	Output IF	T7-6	16-3487	FM-254	1463		
	Output IF	C1446	16-3487	FM-254	1463		Alternate
L9	Ratio Det.	C1542-2	17-3498	FM-255	1465		
	Ratio Det.	C1542	17-3498	FM-255	1465		Alternate
	Ratio Det.	T7-3	17-3498	FM-255	1465		Alternate

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA Tech-Master PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.041A	SR65 ①	1002A ①	RS065 ①	65 ① M150 ②	① Selenium Type ② Silicon Type

MISCELLANEOUS

ITEM No.	PART NAME	Tech-Master PART No.	NOTES
M2	Tuning Cap.	CV11	2 Gang
M3	Switch	SW112	AFC (Rotary, wafer type)
M4	Switch	SW111	Power On-off (SPST)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KN	On-off-AFC, Tuning
Dial Pointer	KN15-1	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder

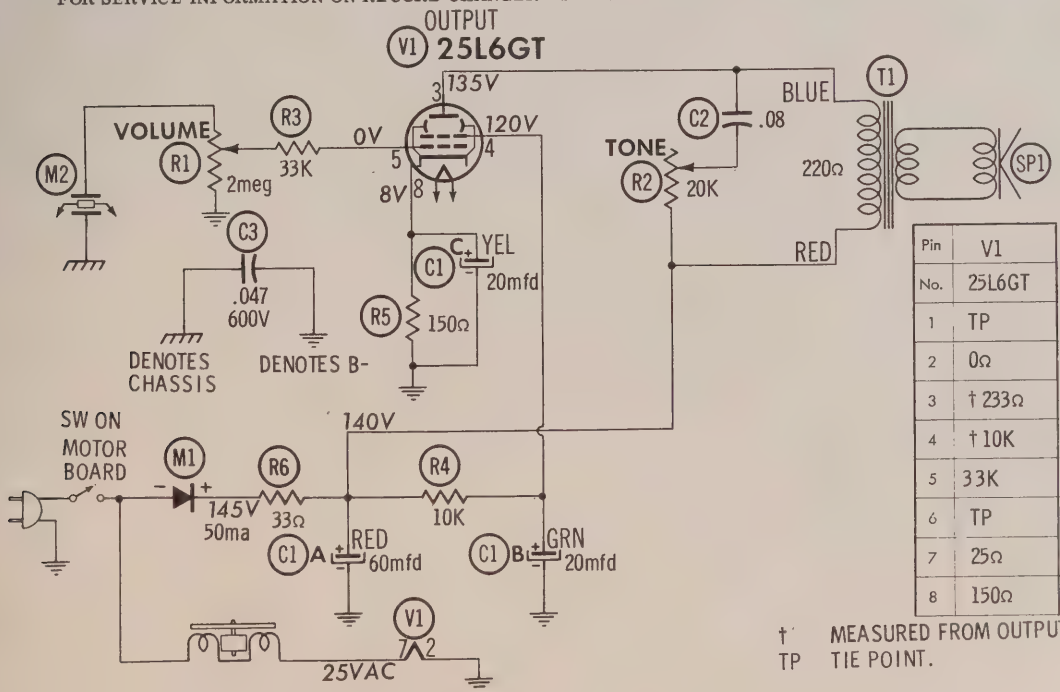
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

V-M MODEL 991

V-M MODEL 991

TRADE NAME	V-M Model 991
MANUFACTURER	V-M Corp., National Service Hdqtrs.. Benton Harbor, Mich.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (One)	Type 25L6GT Output
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .38 Amp. @ 117 Volts AC (39 Watts With Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE V-M MODEL 959-PHOTOFACT SET 396-FOLDER 13.



Pin No.	V1 25L6GT
1	TP
2	0Ω
3	† 233Ω
4	† 10K
5	33K
6	TP
7	25Ω
8	150Ω

† MEASURED FROM OUTPUT OF M1.
TP TIE POINT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958
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SET 398 FOLDER 15

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25L6GT	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	12007	PRS150V5030	BBRQ42215C	WQ230		FMT-339	R1422 *
B	20	150		20					
C	20	150							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.08	400	12005							
C3	.047	600	12073	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	12332	B-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2	20K	½	12331	B-29		Q13-120	U24	Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	V-M PART No.	NOTES
R3	33K		11093	
R4	10K		10973	

ITEM No.	RATING OHMS	RATING WATT	V-M PART No.	NOTES
R5	150Ω		10533	
R6	33Ω		10373	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA V-M PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2000Ω	3-4Ω	Part of SP1	Z1101	A-3025	AU-603 ①	A-3332	24S53	S-12X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA V-M PART No.	QUAM PART No.	NOTES
SP1	4" x 6"	PM	3-4Ω	14821 ①	46A15	Includes T1

SELENIUM RECTIFIER

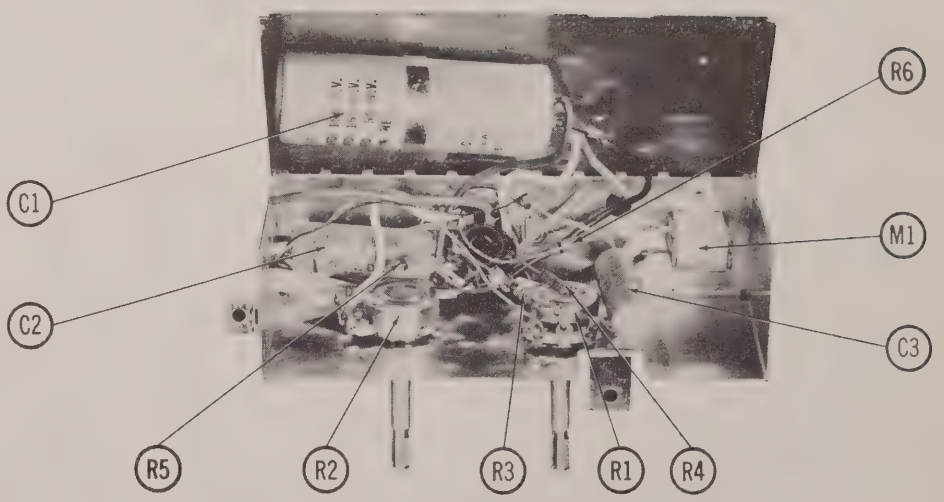
ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA V-M PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.048A	12526	1386	RS065	65	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA V-M PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M2	7825	420TS	N8-1 and N8-3			

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

CHASSIS—BOTTOM VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA V-M PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3	7677 (78RPM)	†CRA-55 or ♦CRA-55D	†W64S or ♦W64D	† Jewel ♦ Diamond
	7678 (LP)	†CRA-55LP ♦CRA-55LPD	†W64MGS or ♦W64MGD	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	5606-A21	Volume
Knob	5997-A21	Tone
Knob	2907-A21	Reject
Knob	14734-A21	Speed Control
Case	14833-A	Complete

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

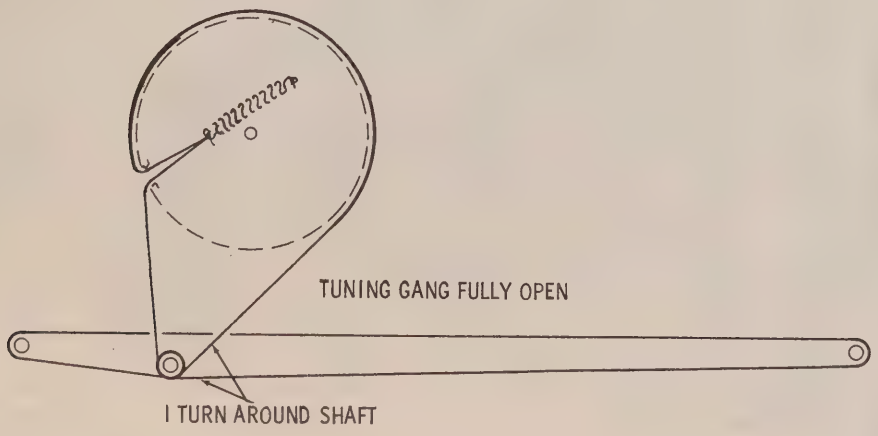
PHOTOFACT* Folder

ZENITH MODELS A723F, R, W, A724G, L, Y, A730E, R (Ch. 7A02, 7A04, 7A05)

ZENITH MODELS A723F, R, W, A724G, L, Y, A730E, R (Ch. 7A02, 7A04, 7A05)

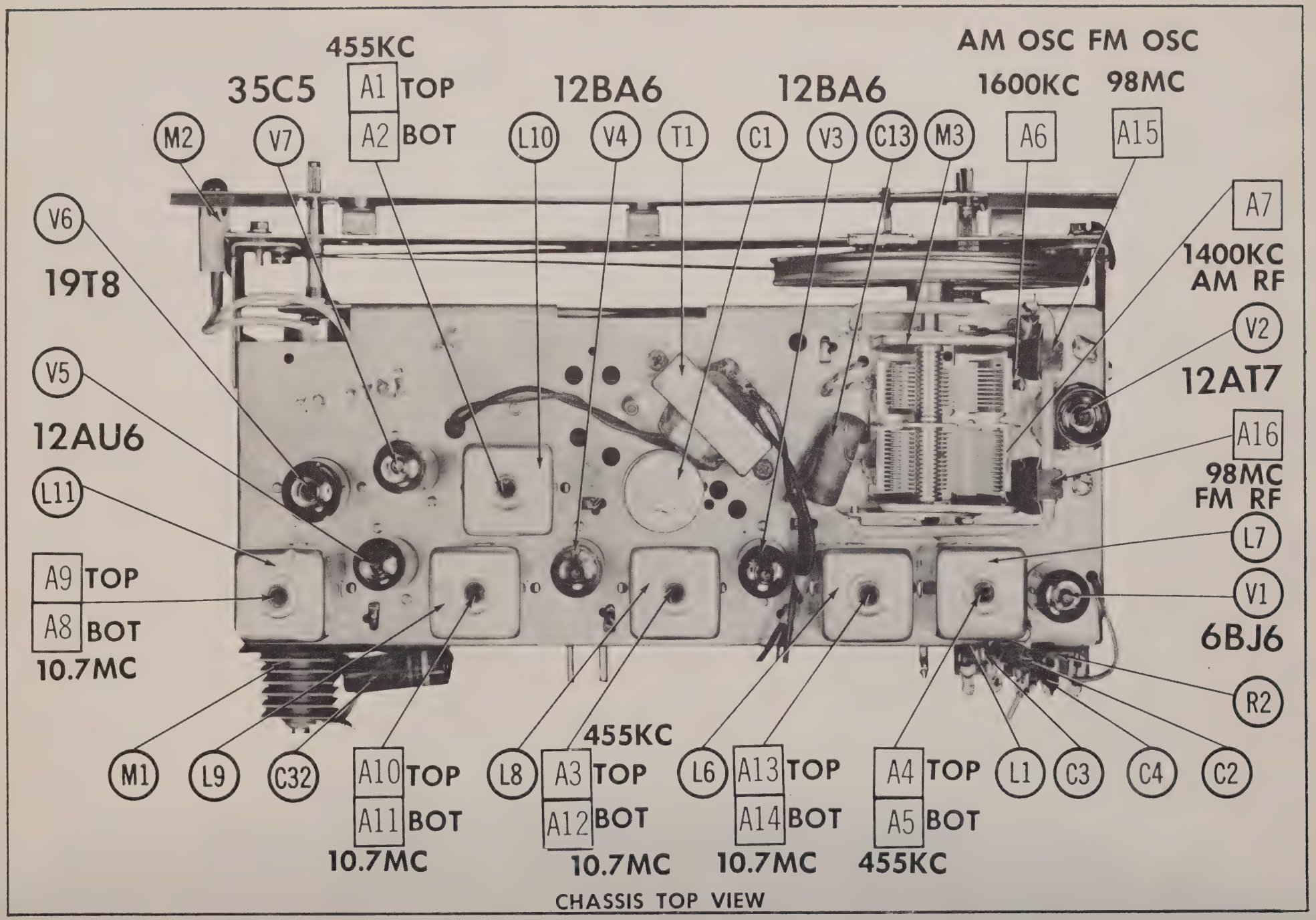
ZENITH MODELS A723F, R, W, A724G, L, Y, A730E, R (Ch. 7A02, 7A04, 7A05)

TRADE NAME	Zenith Models A723F, R, W (Ch. 7A04); A724G, L, Y (Ch. 7A02); A730E, R (Ch. 7A05)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	AC-DC Operated FM-AM Receiver		
TUBES (Seven)	Types 6BJ6 FM RF Amp., 12AT7 FM AM Mixer-FM-AM Osc., 12BA6 1st FM AM IF Amp., 12BA6 2nd FM AM IF Amp., 12AU6 Limiter, 19T8 Disc.-AM Det.-AVC-AF Amp., 35C5 Output		
POWER SUPPLY	110-120 Volts AC-DC	RATING	.32 Amp. @ 117 Volts AC (30 Watts)
TUNING RANGE—BROADCAST	540 - 1610KC	FREQ. MOD.	88 - 108MC



HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and chassis.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting. Tuning wrench Zenith Part #68-19 may be used.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis	455KC (400∿ Mod)	AM	600KC	Across voice coil	A1, A2, A3, A4, A5	Adjust for maximum output.
2.		Loop	1600KC	"	1600KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A7	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.05mfd	High side to pin 1 (grid) of 12AU6 (V5). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe thru 2 meg to point Ⓐ. Common to chassis.	A8	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe thru 2 meg to point Ⓑ. Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
6.	"	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	"	"	"	DC probe thru 2 meg to point Ⓒ. Common to chassis.	A10, A11	Adjust for maximum deflection.
7.	"	High side to pin 1 (grid) of 12BA6 (V3). Low side to chassis.	"	"	"	"	A12	"
8.	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A13, A14	"

Use 2meg carbon resistor in series with DC probe of VTVM.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	200mmf	High side to pin 1 (grid) of 12AU6 (V5). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A8	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A9	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.
6.	"	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A10, A11	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
7.	"	High side to pin 1 (grid) of 12BA6 (V3). Low side to chassis.	"	"	"	"	A12	"
8.	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A13, A14	"

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
9.	270Ω Carbon Resistor	High side to FM antenna terminal. Low side to chassis.	98MC (Unmod)	FM	98MC	DC probe to point Ⓒ. Common to chassis.	A15	Remove line antenna. Adjust for maximum deflection.
10.	"	"	"	"	"	"	A16	Adjust for maximum deflection.

FIG. 1

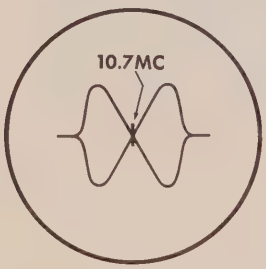
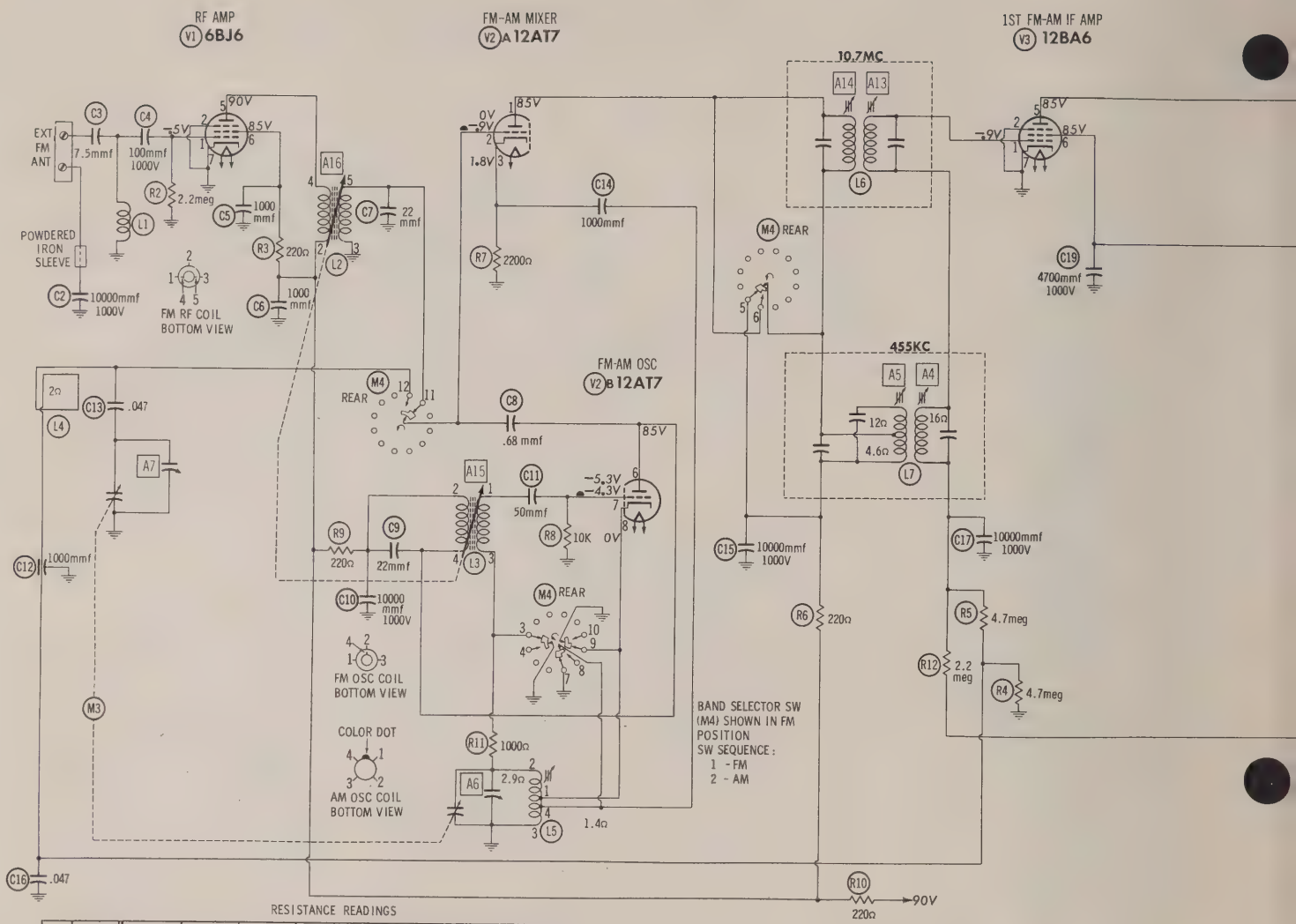


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	2.2meg	0Ω	112Ω	106Ω	†1200Ω	†1400Ω	0Ω		
V2	12AT7	†1400Ω	.1Ω •.4meg	2200Ω	106Ω	94Ω	†1400Ω	10K	2.1Ω	100Ω
V3	12BA6	2.2meg	0Ω	95Ω	82Ω	†1200Ω	†1200Ω	0Ω		
V4	12BA6	100K	0Ω	82Ω	70Ω	†1200Ω	†1200Ω	100Ω		
V5	12AU6	100K	0Ω	31Ω	19Ω	†16K	†16K	0Ω		
V6	19T8	150K	150K	300K	0Ω	19Ω	500K	0Ω	4.7meg	†470K
V7	35C5	150Ω	470K	112Ω	145Ω	470K	†1000Ω	†300Ω		

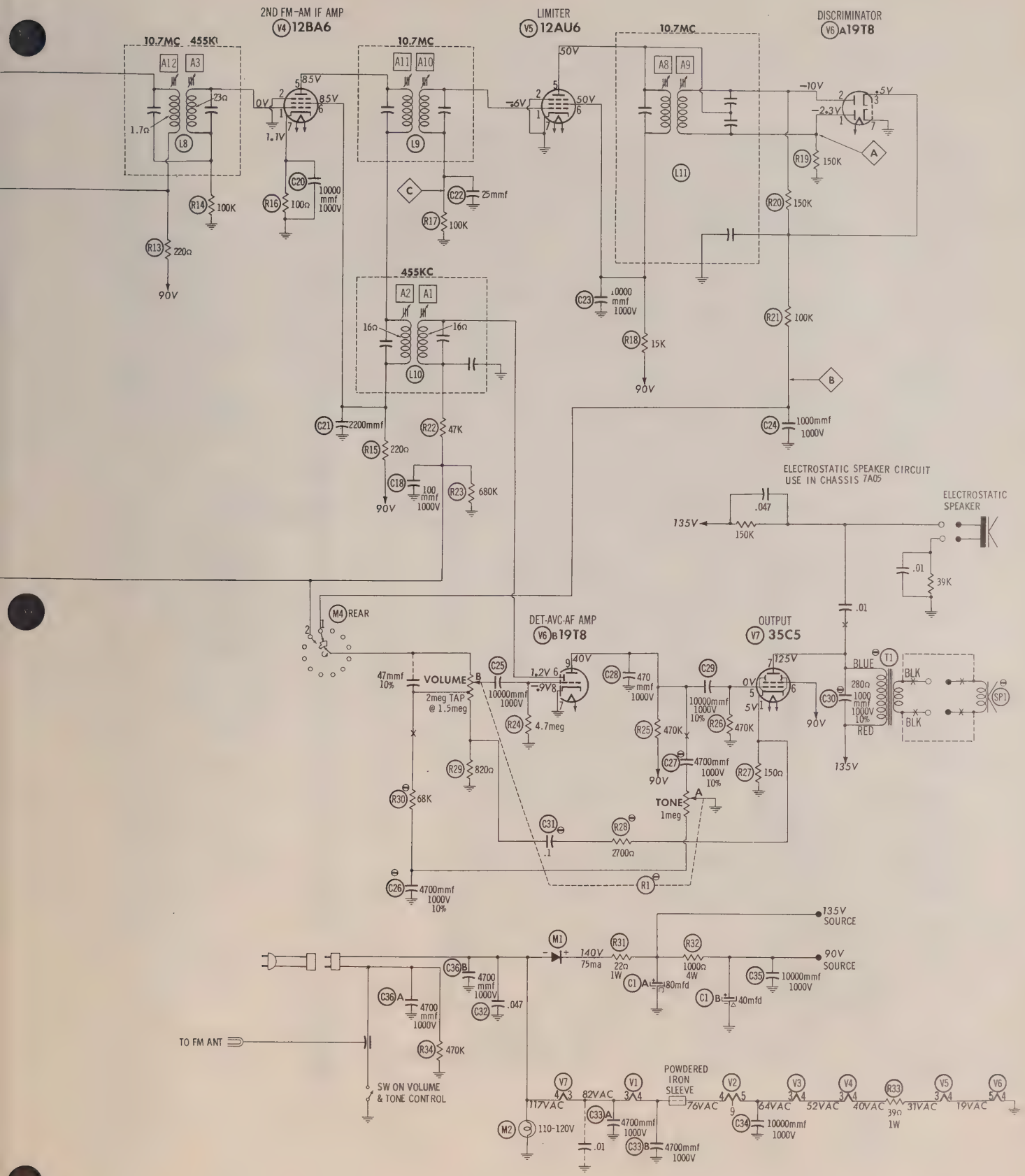
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM OUTPUT OF M1
• MEASURED IN "AM" POSITION
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

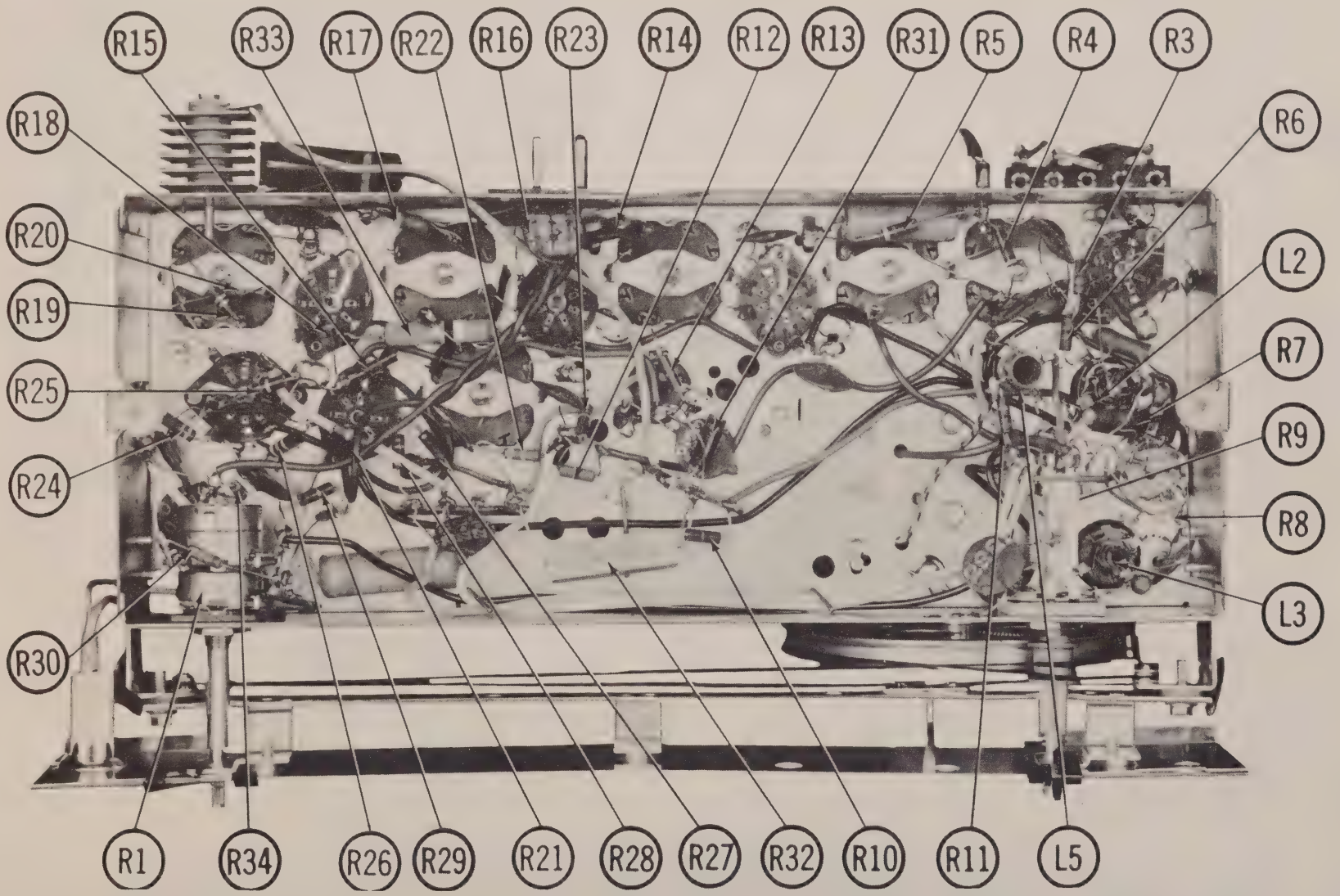
Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958


2ND FM-AM IF AMP
V4 12BA6
LIMITER
V5 12AU6
DISCRIMINATOR
V6 A19T8
10.7MC
455KC
DET-AVC-AF AMP
V6B 19T8
OUTPUT
V7 35C5
ELECTROSTATIC SPEAKER CIRCUIT
USE IN CHASSIS 7A05
ELECTROSTATIC SPEAKER
VOLUME
TONE
REAR
TO FM ANT
SW ON VOLUME & TONE CONTROL
POWDERED IRON SLEEVE
135V SOURCE
90V SOURCE
110-120V
BLUE
RED
BLK

398-16



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BJ6	
V2	FM AM Mixer-FM AM Osc.	12AT7	
V3	1st FM AM IF Amplifier	12BA6	
V4	2nd FM AM IF Amplifier	12BA6	
V5	FM Limiter	12AU6	
V6	Disc.-AM Det.-AVC-AF Amplifier	19T8	
V7	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■80	150	22-1757	AFH2-19	XB0181	FP216	TMD-16	D-085	TVL-2442.1
B	▲40	150							

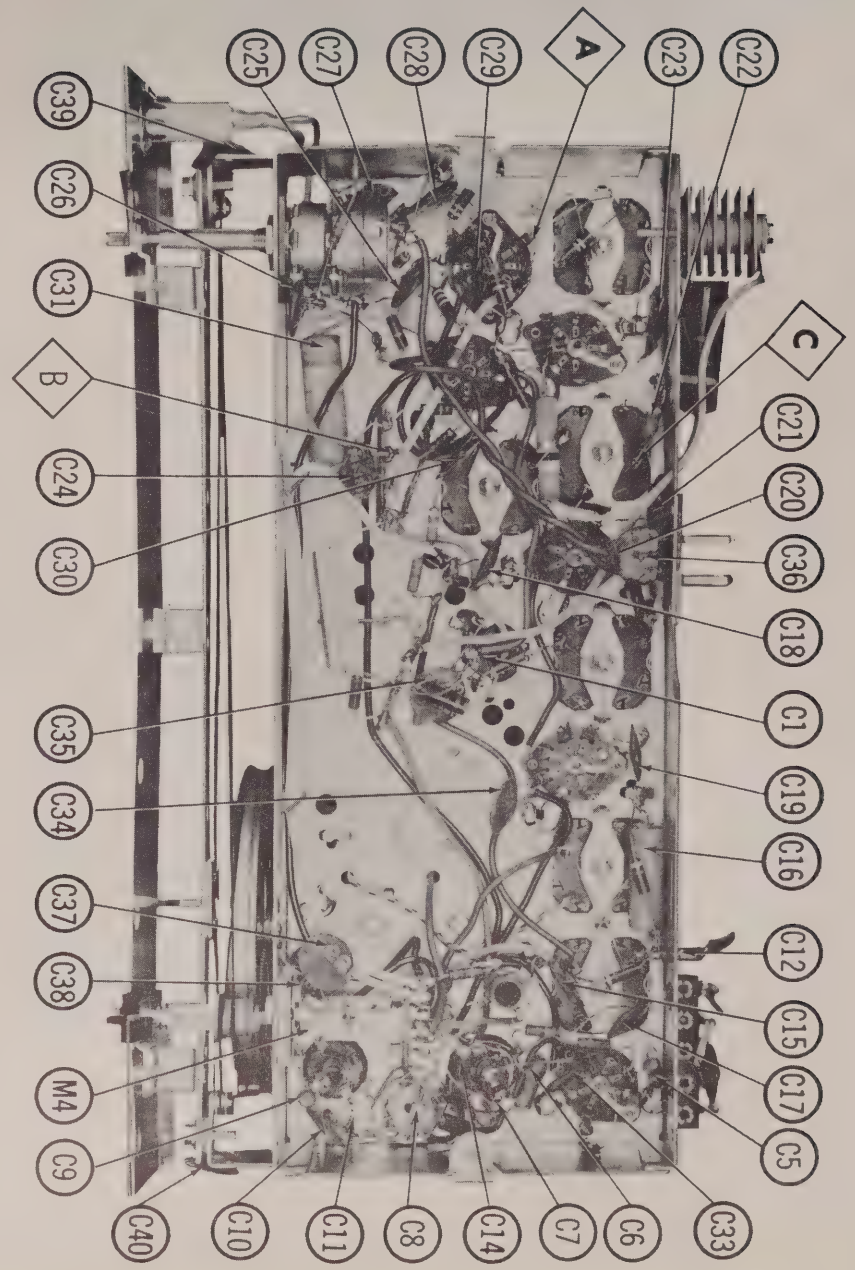
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	10000	1000	22-3	DAC-27		BYA10S1				
C3	7.5		22-1852							
C4	100	1000	22-5	HVD-15-100	DD-101	L10T1	HD15-100		5GA-T1	
C5	1000		22-1676	SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C6	1000		22-1676	SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C7	22		22-1506	SI 22	D6-220	LT6Q22	GP-22	UC-5422	5GA-Q22	
C8	.68		22-1766		TCZ-R68		TCO-.68			
C9	22		22-1506	SI 22	D6-220	LT6Q22	GP-22	UC-5422	5GA-Q22	
C10	10000	1000	22-3	DAC-27		BYA10S1				
C11	50		22-1367	SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C12	1000		22-2732	EF-001	MFT-1000				503C-D1	
C13	.047	200	22-2792	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C14	1000		22-1676	SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C15	10000	1000	22-3	DAC-27		BYA10S1				
C16	.047	200	22-2792	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C17	10000	1000	22-3	DAC-27		BYA10S1				
C18	100	1000	22-5	HVD-15-100	DD-101	L10T1	HD15-100		5GA-T1	
C19	4700	1000	22-14	DAC-8	DD-472	BYA10D47	HD15-4700		5GA-D47	
C20	10000	1000	22-3	DAC-27		BYA10S1				
C21	2200		22-18	BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C22	25		22-1887	SI 25	D6-250	LT6Q25	GP-25	UC-5425	5GA-Q25	
C23	10000	1000	22-3	DAC-27		BYA10S1				
C24	1000	1000	22-17	DAC-2	DD-102	BYA10D1M		DC3021	5GA-D1	
C25	10000	1000	22-3	DAC-27		BYA10S1				
C26	4700	1000	22-14							10% ①
C27	4700	1000	22-14							10% ①
C28	470	1000	22-6	HVD-15-470	DD-471	BYA10T47	HD15-470		5GA-T47	
C29	10000	1000	22-3	DAC-27		BYA10S1				
C30	1000	1000	22-17	DAC-2	DD-102	BYA10D1M	HD15-1000	DC3021	5GA-D1	10% ② ③
C31	.1	200	22-2780	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C32	.047	400	22-2569	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C33A	4700	1000	22-24	DAC-8	DD-472	BYA10D47	HD15-4700		5GA-D47	
B	4700	1000		DAC-8	DD-472	BYA10D47	HD15-4700		5GA-D47	
C34	10000	1000	22-3	DAC-27		BYA10S1			5GA-D47	
C35	10000	1000	22-3	DAC-27		BYA10S1				
C36A	4700	1000	22-24	DAC-8	DD-472	BYA10D47	HD15-4700		5GA-D47	
B	4700	1000		DAC-8	DD-472	BYA10D47	HD15-4700		5GA-D47	
C37	10000	1000	22-3	DAC-27		BYA10S1				
C38	10000	1000	22-3	DAC-27		BYA10S1				
C39	10000	1000	22-3	DAC-27		BYA10S1				
C40	10000	1000	22-3	DAC-27		BYA10S1				

① Not used in Chassis 7A04.
② Not used in Chassis 7A05. Chassis 7A04 use 4700mmf in this application (Part #22-14).
③ Chassis 7A04 use .047mfd in this application (Part #22-2569).

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A B C	1meg 2meg Switch	½ ½	63-3999 ①	F1-51 R2-72 KB-1			■	Tone Volume, Tap ② 1.5meg

① Part #63-4020 (1meg volume control & switch only) used in Chassis 7A04.
■ "STA-LOC" Equivalent: FA16L, OS1437A, RU26T135, IK1000, US-41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R2	2.2meg		63-1926	
R3	220Ω		63-1758	
R4	4.7meg		63-1940	
R5	4.7meg		63-1940	
R6	220Ω		63-1758	
R7	2200Ω		63-1800	
R8	10K		63-1828	
R9	220Ω		63-1758	
R10	220Ω		63-1758	
R11	1000Ω		63-1786	
R12	2.2meg		63-1926	
R13	220Ω		63-1758	
R14	100K		63-1870	
R15	220Ω		63-1758	
R16	100Ω		63-1744	
R17	100K		63-1870	
R18	15K		63-1835	
R19	150K		63-1876	
R20	150K		63-1876	
R21	100K		63-1870	
R22	47K		63-1856	
R23	680K		63-1905	Note 1
R24	4.7meg		63-1940	
R25	470K		63-1898	
R26	470K		63-1898	
R27	150Ω		63-1750	
R28	2700Ω		63-1803	Note 2
R29	820Ω		63-1782	
R30	68K		63-1862	Note 3
R31	22Ω	1	63-3197	
R32	1000Ω	4	63-3296	
R33	39Ω	1	63-2424	
R34	470K		63-1898	

Note 1. Chassis 7A04 use 1meg (63-1912) in this application.
Note 2. Chassis 7A04 use 2200Ω (63-1800) in this application.
Note 3. Not used in some versions.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3900Ω	3-4Ω	95-1467 ①	Z1001	A-2900		A-3856	22S45	S-51X	① Part #95-1468 used in Chassis 7A04

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	QUAM PART No.	NOTES
SP1	4" X 6"	PM	3-4Ω	49-823 ①	46A1	① Used in Models A724G, L, Y, A730E, R
	4"	PM		49-824 ②		② Used in Models A723F, R, W
	Electrostatic			S-42507 ③		③ Used in Models A730E, R

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Antenna Coil	20-355					
L2	FM RF Coil	S-13871					
L3	FM Osc. Coil	S-15733					
L4	Loop Antenna	S-41787					Includes Cabinet Back
L5	AM Osc. Coil	S-22914					
L6	1st FM IF	95-1150	16-3487 *	FM-251 ▲	1451 ▲		
L7	1st AM IF	95-1250					
L8	2nd FM IF 2nd AM IF	95-1251					
L9	3rd FM IF	95-1150	16-3487 *	FM-251 ▲	1451 ▲		
L10	3rd AM IF	95-1102	16-6770 *	BC-355 *	12-C6 *		
L11	Discr. Trans.	95-1153					

* Use Adapter Plate ▲ Enlarge Mounting Holes

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.075A	212-13 ①	1101A ①	RS-100A ①	100A ① M150 ②	① Selenium ② Silicon

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	Indicator Lamp	S-41802	110-120V (Not used in Chassis 7A04)
M3	Tuning Cap.	22-1742	2 Gang (Ant. 19-460mmf, Osc. 15-185mmf)
M4	Switch	85-589	Bandswitch (Rotary, Wafer Type)

CABINETS & CABINET PARTS

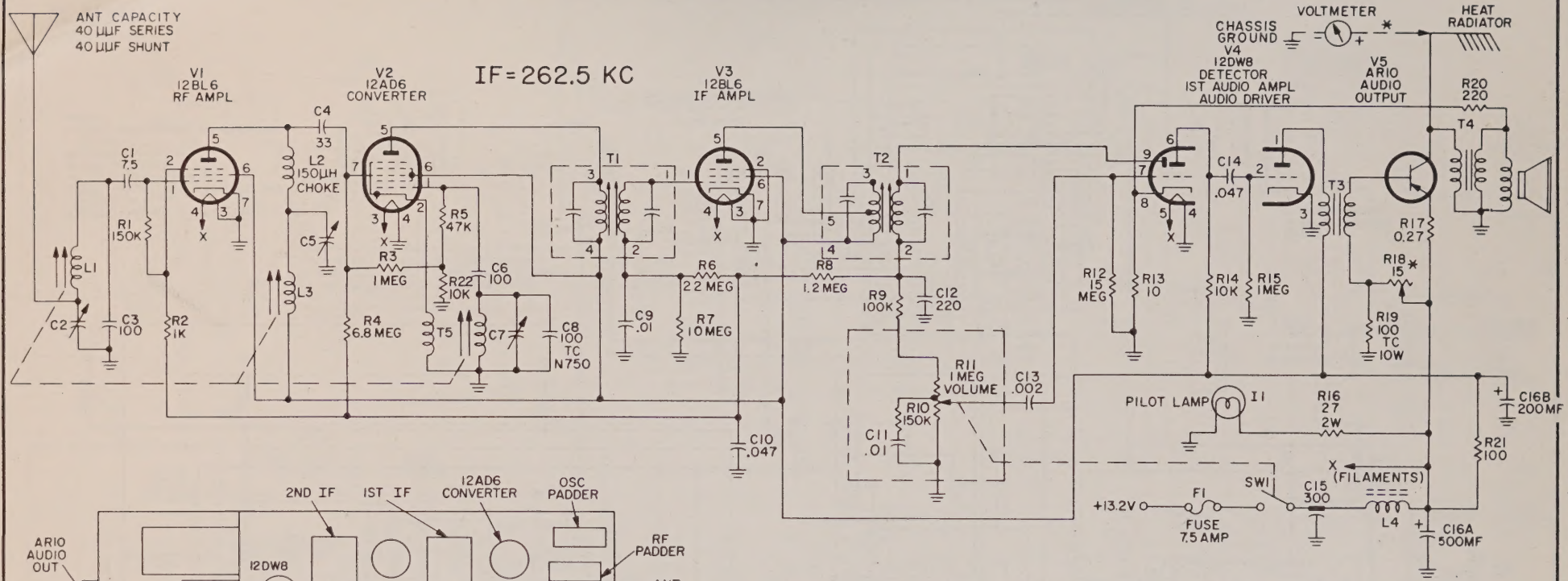
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

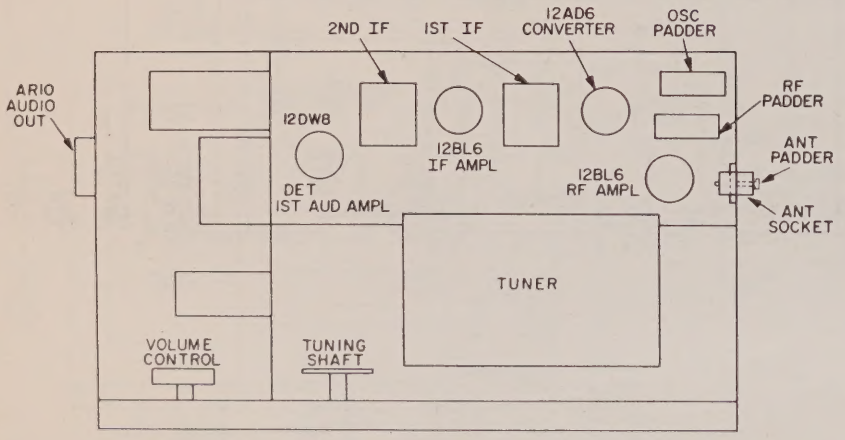
NAME	PART NO.	DESCRIPTION
Knob	46-1813	Volume & Bandswitch
Knob	46-1814	Tuning
Knob	46-1815	Tone (Models A724G, L, Y, A730R, E)
Knob	46-1830	Volume (Models A723F, R, W)
Cabinet	S-41789	Model A724G
Cabinet	S-41788	Model A724L
Cabinet	S-41790	Model A724Y
Cabinet	14-2230	Model A723R
Cabinet	14-2231	Model A723W
Cabinet	14-2232	Model A723F
Cabinet	14-2298E	Model A730E
Cabinet	14-2298R	Model A730R
Dial Scale	26-590	Model A724G, L, Y, A730R, E
Dial Scale	26-591	Model A723F, R, W
Dial Crystal	192-237	Model A724G, L, Y, A730R, E
Dial Crystal	192-243	Model A723F, R, W

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

MOPAR MODEL 848 (P-5801) - Plymouth





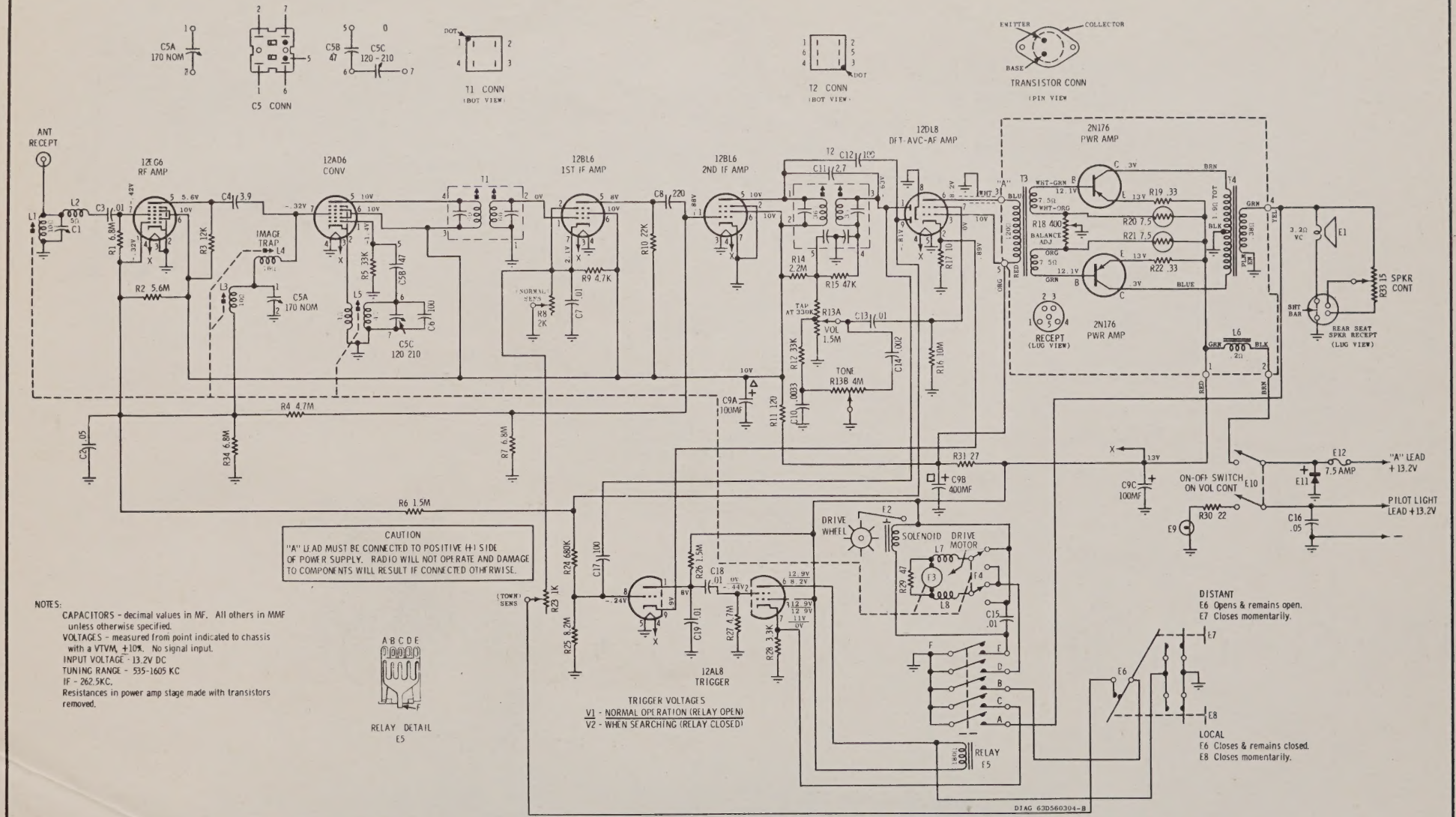
NOTES

1. ALL RESISTANCE VALUES ARE IN OHMS ± 20%, 1/2 WATT, UNLESS OTHERWISE INDICATED.
2. ALL CAPACITANCE VALUES OF 1.0 AND ABOVE ARE IN MMF ± 20%; AND ALL VALUES BELOW 1.0 ARE IN MF ± 20%, UNLESS OTHERWISE INDICATED.

* ADJUST FOR 550 MA COLLECTOR CURRENT OR .95V DC DROP ACROSS OUTPUT TRANSFORMER PRIMARY (NO SIGNAL 13.2V INPUT) DO NOT USE A VACUUM TUBE VOLTMETER FOR THIS MEASUREMENT.

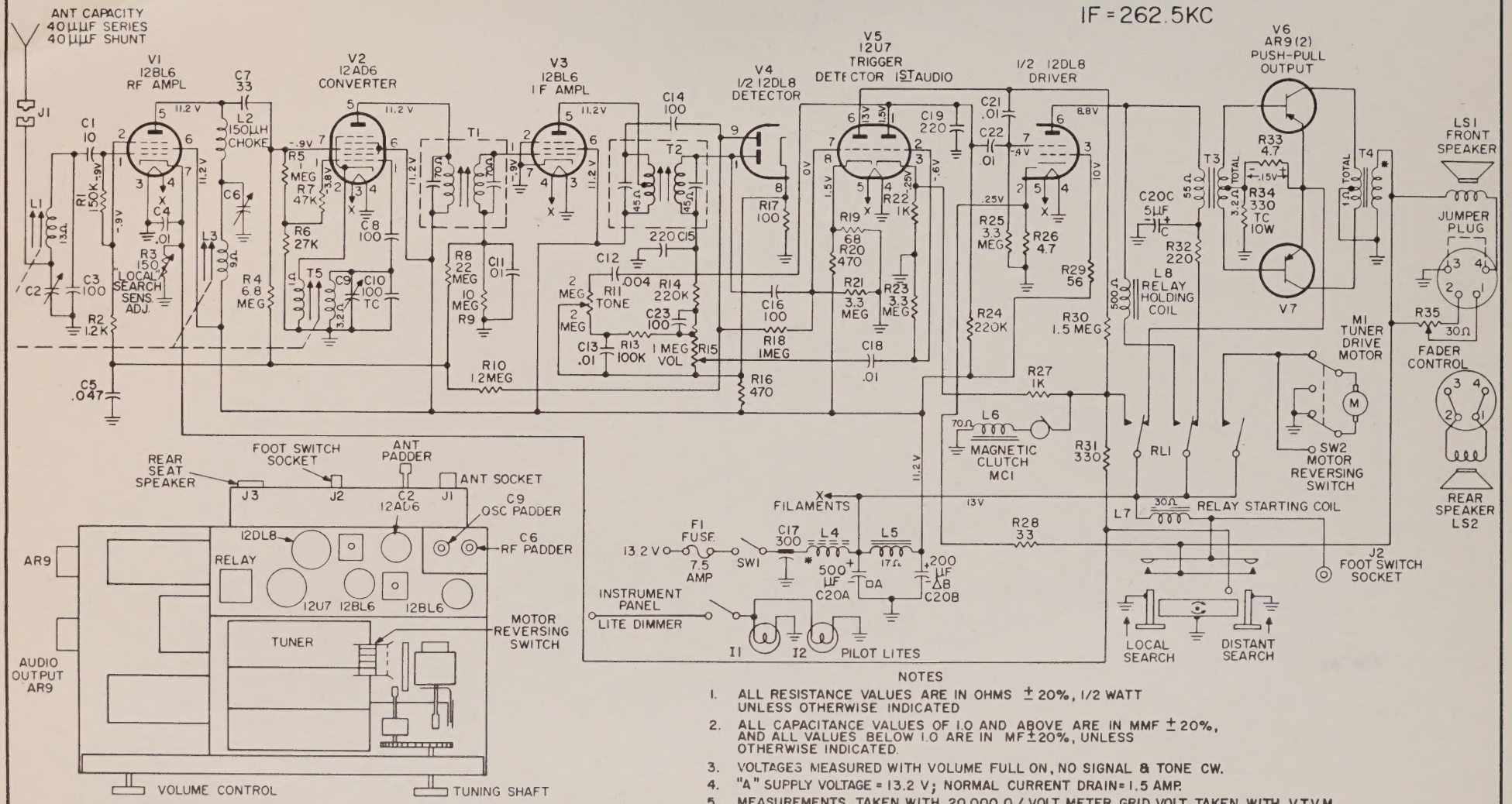
Schematic Diagram Courtesy of Philco Corp.

MOPAR MODEL 923 - DeSoto



Schematic Diagram Courtesy of Motorola, Inc.

MOPAR MODEL 924 (C-5809) - Imperial



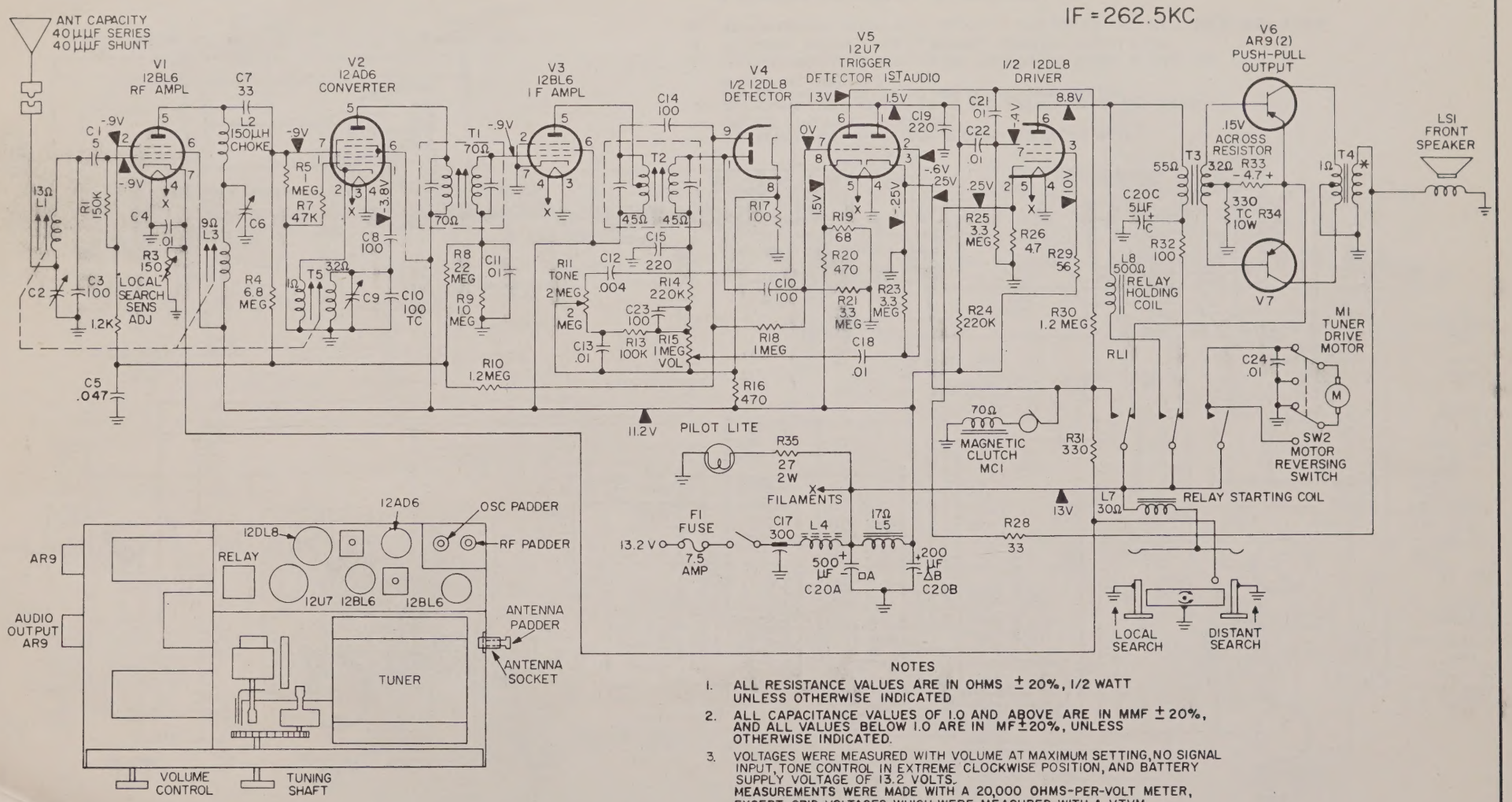
NOTES

1. ALL RESISTANCE VALUES ARE IN OHMS ± 20%, 1/2 WATT UNLESS OTHERWISE INDICATED
2. ALL CAPACITANCE VALUES OF 1.0 AND ABOVE ARE IN MMF ± 20%, AND ALL VALUES BELOW 1.0 ARE IN MF ± 20%, UNLESS OTHERWISE INDICATED.
3. VOLTAGES MEASURED WITH VOLUME FULL ON, NO SIGNAL & TONE CW.
4. "A" SUPPLY VOLTAGE = 13.2 V; NORMAL CURRENT DRAIN = 1.5 AMP.
5. MEASUREMENTS TAKEN WITH 20,000 Ω / VOLT METER, GRID VOLT. TAKEN WITH V.T.V.M.

* INDICATES A RESISTANCE OF LESS THAN 1 OHM.

Schematic Diagram Courtesy of Philco Corp.

MOPAR MODEL 925 (P-5803) - Plymouth



NOTES

1. ALL RESISTANCE VALUES ARE IN OHMS ±20%, 1/2 WATT UNLESS OTHERWISE INDICATED
2. ALL CAPACITANCE VALUES OF 1.0 AND ABOVE ARE IN MMF ±20%, AND ALL VALUES BELOW 1.0 ARE IN MF ±20%, UNLESS OTHERWISE INDICATED.
3. VOLTAGES WERE MEASURED WITH VOLUME AT MAXIMUM SETTING, NO SIGNAL INPUT, TONE CONTROL IN EXTREME CLOCKWISE POSITION, AND BATTERY SUPPLY VOLTAGE OF 13.2 VOLTS. MEASUREMENTS WERE MADE WITH A 20,000 OHMS-PER-VOLT METER, EXCEPT GRID VOLTAGES WHICH WERE MEASURED WITH A VTVM.

* INDICATES LESS THAN 1 OHM.

Schematic Diagram Courtesy of Philco Corp.